

TOXFREE OFFICE – STEP BY STEP TO A HEALTHY WORKPLACE

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CHAPTER 1: INTRODUCTION

1.1 ABOUT THIS GUIDEBOOK

Hazardous substances in my office? Many of us probably don't give it much thought at all. It is an underestimated topic, which is not given sufficient consideration in health checklists in the workplace. There is already detailed information on how to get through a day in the office in a healthy way, but the tips mostly refer to the right sitting position or the right lighting conditions. Less attention, however, is paid to the topic of direct and indirect chemical exposure and pollutant absorption by the human organism. This is despite the fact that chemical exposure in particular has a direct effect on our health and thus also on our performance.

Numerous people in Europe work in office spaces for an average of 40,2 hours a week¹. Many of the products and furnishings we use in everyday office life can contain hazardous substances. Our skin comes directly in contact with paper, pens, keyboards, furniture and many other products every day. If these products contain hazardous substances, we run the risk of absorbing these substances through our skin and damaging our health. We can also inhale microscopic components such as plastic fibers or house dust, since many products release the tiniest material components into their environment through the wear and tear associated with their use.

Office utensils in particular contain a large number of dyes and heavy metals. Some of these are contact allergens which, as the name suggests, cause an allergic reaction when they come into contact with the skin, or even a chronic contact allergy in the case of prolonged and regular contact. Allergies are a widespread disease, affecting more than 20% of the population in most industrialized countries². In addition to allergic reactions and irritations, headaches and lack of concentration of-

ten occur as accompanying symptoms from contact with products such as dyes, paints and odorants.

Currently, some of these substances are suspected to be behind the increased number of cancer and type II diabetes cases. Some studies also point to the association of some of these substances with obesity, decreased fertility and damage to the nervous system. The correlation with the aforementioned diseases can be partially attributed to the hormone disrupting properties of some chemicals, something which has been increasingly demonstrated in recent years. Due to their chemical structure, these substances are mistakenly recognized by the human body as „hormones“ and act similarly to the body's own hormones, disrupting our finely balanced hormonal system, especially for pregnant women and men's germ cell production.

Since new chemicals are constantly being developed, national and EU law currently lags behind when it comes to protecting citizens from exposure to harmful substances. Therefore, evidence is needed from science to develop legislation.

In the interest of preventive health care, it is therefore advisable to avoid contact with products containing hazardous substances as far as possible. This can also make sense from an economic point of view, when it comes to reducing the costs associated with lost working hours. Companies can also use a targeted reduction in the emission of hazardous substances as a valuable unique selling point to enhance their image and promote the company. Protect your employees, nature, and future generations!



1.2 ABOUT NONHAZCITY

This guidebook was developed within the Interreg Project NonHazCity (nonhazcity.eu). The project team consists of partners around the Baltic Sea with experts from science, NGOs, municipalities, and business. The project demonstrates possibilities to reduce emissions of hazardous substances to the Baltic Sea from sources upstream: from our daily lives at home and at work in town. NonHazCity promotes municipalities setting reduction targets and developing chemical action plans to minimise emission sources. The project aims to reduce emissions not only within the municipalities own properties and operations but also within private companies and consumers.

For more information about the project, visit:
www.thinkbefore.eu

Hazardous substances are invisible to the naked eye, but they are used everywhere: in many products, materials and goods. NonHazCity has highlighted the multitude of these uses and campaigns for concrete reduction potentials and safer alternatives where possible to be used by the different actors in our cities. NonHazCity strives to gain societal visibility for the topic and to put it on the political agenda of municipal decision makers. It wants to make chemicals risk management an issue for everyone – starting in our homes and then in our workplaces and all activities in town.

CHAPTER 2: CHEMICALS ARE EVERYWHERE

2.1 LEGAL REGULATIONS

For the assessment of a possible health hazard, it is important to obtain a concrete picture of the exposure situation and to communicate this to the persons concerned. In order to be able to assess the potentially harmful effect on health in the case of exposure to hazardous substances, exposure limit values are generally used. The scope of these regulations is not always sufficient and does not yet include all critical chemicals.

The EU adopted the Framework Directive on Safety and Health at Work (Directive 89/391/EEC) in 1989, marking an important milestone in improving occupational safety and health (OSH). This directive established minimum safety and health requirements applicable throughout Europe. The occupational safety is subject to various directives, for the protection also for hazardous substances. Directives exist for: use of work equipment, workplace requirements, carcinogens or mutagens at work, chemical agents, indicative occupational exposure limit values and others. The directives even regulate individual substances via limit values. The only question is whether all manufacturers adhere to these limits, and if so, we are in contact with many different chemicals throughout the day, so that limits are quickly exceeded - the quantity makes the poison.

For this reason, we are asked to protect ourselves by avoiding materials that may contain potentially hazardous substances in the first place. For a better workplace and healthy colleagues.

For further information about directives and guidelines have a look at the following websites:

- OSH legislation: <https://osha.europa.eu/en/safety-and-health-legislation/european-directives>
- Guideline – Health and safety at work is everybody’s business: <https://op.europa.eu/en/publication-detail/-/publication/cbe4dbb7-ffdc-11e6-8a35-01aa75ed71a1>
- Guideline- Practical guidelines of a non-binding nature on the protection of the health and safety of workers from the risks related to chemical agents at work: <https://op.europa.eu/en/publication-detail/-/publication/b8827eb0-bb69-4193-9d54-8536c02080c1/language-en>
- Minimising chemical risk to workers’ health and safety through substitution: <https://op.europa.eu/en/publication-detail/-/publication/c94c5caf-fca6-498e-8dff-f75c6e20147f>



2.2 CHEMICALS: THE USUAL SUSPECTS

But what chemicals are we talking about in particular? We are looking in particular at the chemicals that are designated as Substances of Very High Concern (SVHC) under REACH (EU Chemicals Regulation). In other words, those that are carcinogenic, mutagenic and toxic to reproduction. But we are also looking at other substances that have not yet been adequately regulated. These substances or additives give our everyday products certain properties, e.g. low flammability and water resistance.

Exposition / Substances*	Usual sources
Formaldehyde (releasers)	Foam insulation material, chipboard, adhesives (glue), wood preservatives, cleaning agents, surface and instrument disinfectants, preservatives for paints
Ozone	printer
Polycyclic Aromatic Hydrocarbon (PAH)	Paints
Brominated and chlorinated flame retardants	Electronical devices, furniture, textiles
Bisphenol A	Plastic items; thermal paper (e.g. receipts)
PVC	washable wallpapers, floor coverings; plastic items (e.g. plastic folders, erasers)
Phthalates and other plasticizers	washable wallpapers; plastic items; flooring coverings
Halogen-organic and organotin compounds	Wandfarben Wall paints;
Mineral oils	Printing inks, Paper, colouring pencils
Glycol compounds	Wall paints
Alkylphenol ethoxylates (APEO)	Cleaning agents
Azo dyes	Wall paints; (felt tips) pens
Toluene, Xylene	Fibre pens
Dichromate, Cobalt, Gentian Violet	Stamping inks, inks in general
Isothiazolinones (Methylisothiazolinone, Methylchloroisothiazolinone, Benzisothiazolinone)	Wall paints, hand soap, cleaning agents
Fragrances (linalool, limonene, amyl cinnamal, hexyl cinnamal, benzyl alcohol, coumarin, benzyl benzoate, geraniol, eugenol, citronellol, citral)	Hand soap; cleaning agents, air freshener
Parabens: Methylparaben, Ethylparaben, Propylparaben, Butylparaben (biocide)	Hand soap; cosmetics

* This table shows only the most common harmful substances.

2.3 EFFECTS ON HEALTH AND THE ENVIRONMENT

Describing the impacts of all currently existing chemicals on health and the environment would go well beyond the scope of this guidebook. Therefore, we have limited the information about chemicals to the most commonly used and those that are especially harmful and hazardous.

Plasticizers (phthalates), bisphenols, (brominated) flame retardants and organotin compounds are all hormonally active compounds, also known as endocrine disruptors. They can interfere with our finely balanced hormonal system and disrupt hormone-controlled processes such as metabolism, growth, immune system function and organ development. A variety of diseases and disorders including, infertility, allergies, obesity, type 2 diabetes, different types of cancer, immunodeficiency, learning and behavioural disorders as well as malformations of sexual organs are all associated with these artificial and hormonally active substances.

Preservatives (biocides) like parabens, isothiazolinones and formaldehyde releasers are supposed to make products last

longer and eliminate microorganisms. For us humans, these substances can be harmful because they can cause allergies, for example. Some parabens in particular are also endocrine disruptors and can damage our hormone balance. Formaldehyde can even cause cancer when inhaled³ and is suspected of being mutagenic⁴.

The environment is also affected, because if the substances get into the wastewater, they are usually not efficiently removed from the sewage treatment plants and thus end up in our rivers and seas. Many substances can harm wildlife as well as us. In addition, some substances accumulate in the environment and are persistent (difficult to break down). This makes them difficult or impossible to remove from the environment and where they continue to damage flora and fauna.

CHAPTER 3: OFFICE MANAGEMENT

B₃ U₁ Y₄

L₁ E₁ S₁ S₁

C₃ H₄ O₁ O₁ S₁ E₁

W₁ E₁ L₁ L₁

M₁ A₁ K₅ E₁

I₁ T₁

L₁ A₁ S₁ T₁

3.1 PROCUREMENT

The procurement of office consumables for daily use and other goods and commodities is of great importance. It sets the standards for the possibilities to make sustainable purchases to your office. In addition, through conscious purchasing you send a clear signal to the market - a more sustainable use of valuable resources and a healthier office environment. Public procurement alone accounts for a large share of the acquisition of products and services throughout Europe. This considerable buying power can be consciously used to reduce environmental impacts, improve the supply of environmentally friendly products and services or specifically support the market launch of innovative environmentally friendly products⁵. And everyone can contribute to this - whether a public institution, private person or company!

The procurement management has a wide range of options for taking environmental aspects into account when awarding contracts. The following measures are just a few examples:

- Decide whether a new product must be purchased. Buying a used one or renting/leasing may be a more environmentally friendly option.
- Consideration of the end of use of a product: reusability, reparability, recyclability.
- Consideration of life cycle costs and economic costs resulting from environmental damage.
- Procurement of products with quality labels such as the Blue Angel or the EU Ecolabel.
- Certification with EMAS

Impacts of procurement

Every product we buy has a huge range of environmental, social and economic impacts⁶. Here is a list of examples of the potential impacts on the different areas of sustainability of using efficient procurement criteria:

Environmental aspects

- Reducing the use of fossil raw materials
- CO₂ is stored during plant growth and the use phase
- CO₂ emissions can be reduced
- Cascade use keeps CO₂ bound
- The stored CO₂ is not released until incineration
- Climate-friendly disposal with unmixed quality
- Low-pollutant production methods
- Verification through recognised quality marks
- Less harmful chemicals

Social aspects

- Jobs through growth markets
- Regional added value and prospects for rural areas
- Transparent supply routes and fair trade
- Fair working conditions and remuneration
- Consideration of the common economic good
- Health aspects, e.g. through product declarations (EPD)

Economic aspects

- Security of supply
- Competitive advantages through innovations
- Savings through strategic purchasing and durability
- Potentially less stoppage of work due to reduction of hazardous substances
- Economic efficiency through a holistic approach
- Reduction of overall costs
- Improved image and social legitimacy



Take eco-certification into account

Eco-labels offer another way of selecting sustainable products. Eco-certification is a voluntary method of certifying and labeling environmental performance and standards, which is practiced worldwide. An eco-label certifies products or services that are more environmentally friendly according to specified criteria. The eco-label organisations often group articles or services into different categories and develop criteria suitable for the respective categories.

In contrast to supposedly „ecological“ symbols or claims made by manufacturers and service providers, trusted seals are awarded to specific products or services by impartial third parties, independently determined to meet transparent environmental criteria based on life cycle considerations, including chemical criteria.

Eco-labels vary - they can provide information about the different characteristics of the product. For example, type I eco-labels are the most reliable, as they are actually based on life cycle considerations. There are other eco-labels that do not evaluate the entire life cycle, instead only evaluating some aspects, but they can also indicate that a product does not exceed a set maximum level of hazardous substances.

A list of eco-labels can be found in chapter 6.4 (page 34) or by using the app “Ecolabel Guide”.

Ecolabelling at a glance

- A reliable ecolabel ensures that the product or service meets strict environmental requirements.
- Reliable ecolabel means for example that it is certified by an independent party.
- Using an ecolabel is an easy way to take

environmental concerns into account in public procurement because it frees the procurement unit of individually controlling whether the product or service meets each criteria, as the ecolabel includes them all.

Table 1: Overview of criteria in product groups that should be considered when buying

	Furniture	Flooring	Paints, varnishes and wallpapers	Electro & IT	Detergents and hygiene articles	Stationery	Small materials	Inks & toners
No azo dyes	x	x	x	x	x	x	x	x
No heavy metals, halogen organic compounds, plasticizers	x	x	x	x	x	x	x	x
No VOC compounds*	x	x	x	x		x	x	x
No chlorine, optical brighteners, EDTA, halogenated bleaches, APEO, fabric softeners, phosphonates.					x	x		
No PVC	x	x		x			x	
No biocides, endocrine disrupting preservatives	x	x	x		x		x	
No fragrances					x	x		
No phthalates, organophosphates, brominated flame retardants	x	x	x	x	x		x	x
PP, PE and recycle content	x			x			x	x
Untreated or environmentally friendly treated** wood from sustainable, certified timber industry	x	x					x	
Secondary fibre, recycled paper			x		x	x	x	
Easy to repair / disassemble, cost-effective replacement of spare parts	x			x			x	x
Refill option					x		x	x
Return after use	x			x				x

* According to VOC Directive 1999/13/EC.⁸

** Oiled, waxed, water-based lacquer

3.2 OFFICE SUPPLIES

Products for everyday use like sticky notes, pens or plastic folders may contain hazardous substances. Apart from using only what you need, it is possible to reduce the contact by buying products with that are certified as eco-friendly. The Blue Angel, cradle2cradle and the EU Ecolabel can often be found on more sustainable office utensils.

Look for suppliers who sell sustainable office supplies!

Go through this checklist to evaluate the current exposure of hazardous substances in your department. We recommend using up the utensils and replacing them one by one with safer options.

Product	Number	Alternative
Plastic pens, ballpoint pens		<ul style="list-style-type: none"> Use alternatives (with wrappings) made of wood, e.g. bamboo, metal or cardboard. Pay attention to reusability (refilling with e.g. ceramic graphite refills made of mineral or renewable materials)
Scissor handles made of plastic		
Paperclips made of plastic		
Rulers, Mousepads and desk pads made of plastic		
Folders, labels and storage boxes of plastic		<ul style="list-style-type: none"> Alternatives made of cardboard and recycled paper or wooden cover
Bleached paper Possible substances: <ul style="list-style-type: none"> APEO azo dyes chlorine fragrances EDTA halogenated bleach organohalogen compounds Optical brighteners phosphonates Heavy metals softener (plasticizer) VOC compounds 		<ul style="list-style-type: none"> Use of 100% recycled paper (ten times less wastewater due to fewer chemicals in the production process) Use single-sided paper as a smear / note sheet Pay attention to „Blue Angel“ when buying paper Avoid printing by using digital storage as much as possible, for example archiving, reading reports and articles, taking notes etc. Save resources by only printing when absolutely necessary, and in that case always use double sided printing options
Mailers with inner rubber coating and adhesive tape for sticking packages Possible substances: <ul style="list-style-type: none"> Pay attention to plastic seals (polypropylene often used for adhesive tape) PVC Organic solvents Plasticizer 		<ul style="list-style-type: none"> Alternative made from recycled paper, also other Packaging material made from natural, chlorine-free materials Favour adhesive tape from natural fibre/paper tape
(Empty) toner cartridges Possible substances: <ul style="list-style-type: none"> azo dyes organohalogen compounds organophosphates phthalates polypropylene, polyethylene Heavy metals VOC compounds plasticizer 		<ul style="list-style-type: none"> Do not dispose of it in the rubbish but return to the manufacturer. (enter into contracts with manufacturers who guarantee that empty cartridges will be taken back free of charge). Toners and inks should be free of: Mercury, cadmium, lead, nickel and chrome VI compounds, as well as azo dyes, which can release carcinogenic amines. which can release carcinogenic amines
Correction fluids, fiber sticks <ul style="list-style-type: none"> aromatic hydrocarbon Adhesives / glue sticks in aluminum tubes <ul style="list-style-type: none"> bisphenol A organic solvents preservatives plasticizer 		<ul style="list-style-type: none"> Plastic containers free from organic solvents Favour products with refill option

3.3 OFFICE EQUIPMENT

Office Room

Lack of concentration, headaches and burning eyes are common complaints of professionals with office jobs and typical signs of sick building syndrome. The phenomenon describes illnesses whose cause is unclear but suggests a particular indoor situation as a trigger. These symptoms are found in about 10 per cent of the general population.

Such complaints can be triggered by the inhalation of pollutants through furniture, paints, varnishes and other office components. Many hazardous substances can be hidden in a single office space. Since the main part of the working day is spent in the office, it is of great importance to reduce emissions of hazardous substances here. This can be done through healthy choices of office materials, but also through the behaviour of employees, employers and other people who are part of the working space. For the sake of healthy, motivated and concentrated employees as well as for the environment!



3.3.1 Air conditions

Have you ever experienced thick or sticky air in the office room? Bad air comes not only from our own breathing but can also be caused by evaporation of pollutants in furniture, textiles, cleaning agents, floor coverings, wallpaper paint and other materials. The smallest components of coatings, treatment agents and waterproofing can dissolve through wear and tear as well as heat and accumulate in the dust. In addition to the pollutants from the wall paint which can evaporate, as well as other sources of hazardous substances, a big cocktail of chemicals is created, and we can absorb the pollutants by breathing them in. Research on the interaction of pollutants in our bodies is still in its infancy. We take the first step towards avoiding a health risk by always ensuring fresh indoor air!

How many times a day do you ventilate?

Estimate a number: _____

Tips for better indoor air

- Ventilate several times a day and not just windows on tilt, because then there is no real exchange of air.
- Ensure that the room air temperature is below 21°C. Lower temperatures ensure that less HS are released.
- Do not use room sprays because they usually contain many artificial fragrances. They can trigger headaches, contact allergies and other intolerances and the fine spray mist can be quickly inhaled.
- Avoid products that contain volatile organic compounds (VOC). Pay attention to the label or ask for advice. Pay attention to the marking "Emission Scale" - choose products marked A +
- Plants can greatly improve indoor air since they humidify the air naturally (list with plants on page 31).





3.3.2 Office Furniture

Furniture should be practical, comfortable, look good and be in an affordable price range. For the sake of healthy employees, as well as environmental protection, another important point should be added to the selection criteria: Free from hazardous substances.

The hazardous substances BPA, Phthalates and Nonylphenol all function as hormonal disruptors in human bodies and thus can weaken the immune system, or cause infertility. The four chemicals have got something else in common: They can all appear together in a single office chair. Phthalates for example occur as plasticizers in imitation leather, PFAS provides stain- and water-resistency⁷ and Nonylphenol works as solvent in colours^{8,9}. We can absorb the hazardous substances through skin contact or breathing, for example when the synthetic fibre of a chair that is treated with dyes and other chemicals is worn out and released into the air.

But there are just as many ways to avoid chemicals and choose safer alternatives as there can be chemicals in a single chair. Besides, the healthy alternatives are often of higher quality and thus can be used for longer. Longevity of furniture has a big impact on the environment as well.

	Yes	No
Do you own second-hand furniture?		

Furniture manufacturing in the EU (2018) was responsible for 4.3 million tonnes of CO₂. 10 million tonnes of furniture are discarded by businesses and consumers in the EU each year, which is already a good argument to buy second-hand furniture for the sake of environmental protection. The good news is that it can have a good impact on our health as well.



If you want to replace furniture and textiles, consider buying second-hand.



Furniture made from chipboard often contains allergenic formaldehyde - which has probably already evaporated by the time you buy second-hand.



Avoid furniture and cushions with foam rubber from the 70s, 80s and 90s. Back then, flame retardants were used that are banned today. Therefore, when buying second hand, make sure you know how old the furniture is.

Take a look at the material of your furniture


Have you ever experienced the smell of „new furniture“ in a room? That smell can be an indicator for hazardous substances that belong to a group of chemicals termed volatile organic compounds (VOCs), a common feature of which is a low boiling point and high likeliness to evaporate¹⁰. They are for example a common ingredient in solvents and dyes for furniture textiles¹¹. Furniture can also contain harmful formaldehyde and short-chain carboxylic acids.


	Yes	No
Do the majority of worktables have a plastic surface?		
Are the majority of office chairs made of synthetic fibre?		


Recommendations


- Plastic materials should be limited to a functionally necessary minimum and free from halogenated polymers (e.g. PVC).
- Favour eco-certified or recycled cotton for fabric covers or other textiles that cover your furniture.
- Choose solid wood furniture, as untreated as possible. They are often more easily repairable, durable, stable and don't release any chemicals.
- If possible, choose furniture with wood from the EU instead of tropical or other non-domestic wood. In the EU there are stricter requirements regarding the use of chemicals.
- Choose furniture made from wood from sustainable forestry (FSC- and PEFC-label).
- Choose furniture with eco labels (page 34).


Pay attention to the following properties for surface coatings and dyes

 If a coating is required, choose one made of natural oils, pigments and waxes.

 When painting furniture, do not use pigments based on harmful metals such as cadmium, chromium 6+, mercury, lead or their compounds.

 Avoid halogenated flame retardants, chrome-tanned leather or halogenated synthetic furniture covers.

 Favour water-based varnishes without solvents.

 Give preference to modular systems with plug-in and screw connections instead of glued furniture, as the glue may contain hazardous substances which can be emitted.







3.3.3 Electronics and Energy


Electronics nowadays play an essential role in most offices. On the one hand, they make work more efficient, but on the other hand, the production of electronics is consuming large amounts of precious raw materials and when discarded giving rise to a lot of e-waste, which is challenging to recycle¹². Furthermore, electronics can pollute the indoor air with hazardous substances, such as BPA and brominated flame retardants. Both are, among others, included in laser printers and telephones and can cause obesity and diabetes and harm our inner organs.

The good news: You don't have to rush to dispose of your electronic devices and procure healthy alternatives. In terms of electronics, you can already make a big difference by using them efficiently and safely in regard to health as well as environmental protection.


Do you avoid unnecessary emissions?	Yes	No
Do you switch to standby mode when you leave for lunch break?		
Do you switch electronic devices off over night?		


 When leaving the office for a short time (e.g. during lunch break), always switch to sleep mode instead of stand-by mode and activate the energy-saving function. When not in use for a longer period of time or at night, switch off your device completely by unplugging power adapters and transformers from the socket.


 Fewer devices should be used by multiple employees, limited to key devices.


 If possible, implement flexible working time models which allow colleagues to share a workstation. In so doing you can reduce the requirement of material, energy, and chemicals.

Pay attention at where you place your electronics	Yes	No
Is the printer in a separate room?		
Are there cables near the heater?		
Do you vacuum thoroughly near technical equipment?		


 Due to the high temperatures that arise during printing, volatile substances such as paraffins (mineral oil) evaporate and accumulate to form nanoparticles. Place the printer as far away as possible from employees, perhaps even in a completely different room, to prevent the inhalation of these substances. That applies especially to laser printers.

 Organize one network printer for the entire office not only to minimize the evaporation of hazardous substances but also to save energy.

 Are there cables next to a heater? If so, place them somewhere else where they are not exposed to heat. Cables are often made of PVC, which may contain additives such as phthalates and/or flame retardants. When cables and appliances are heated, harmful chemicals can be emitted.

 Vacuum often near electronic devices and ventilate several times a day to ensure clean air. Chemicals often accumulate in the dust. It is especially important to vacuum near electronic devices as they release both flame retardants and phthalates. Avoid flushing dust down your sinks, as this would mean that sewage treatment plants have to deal with the problem of pollution. Vacuum first and wet wipe after to prevent dust in the water system. Throw the dust into your rubbish bag.

Choose your electronics with care




-  When buying new electronics, pay as much attention as possible to longevity. In the case of contracts, look not only at the performance figures of the device, but also pay attention to support guarantees, maintenance contracts and the provision of spare parts by the manufacturer, as well as energy consumption.
-  Covers should be heat stable, impact resistant and scratch resistant.
-  Choose alternatives made of wood material (bamboo), for example a USB-memory stick with wooden casing and choose connecting cables with a cloth sheath.
-  Additional guidance on energy consumption and less harmful substances is provided by various labels such as Energy Star or TCO label (page 34).
-  Keep in mind that laptops and pads are more energy-efficient than desktop PCs.
-  Use Green power for lower emissions.



3.3.4 Lighting conditions

Appropriate light creates a pleasant working atmosphere and increases our ability to perform and concentrate. We also protect our health by choosing the material of our window covering carefully and avoiding plastics, because otherwise, the contained chemicals can evaporate. What's more, alternatives made out of natural fibre as cotton and linen often even look better than the plastic ones!

	Yes	No
Is the window covering in your office mostly made of plastics?		

-  Choose cotton or linen for a strong window covering.
-  Use fabric awnings on the outside walls of the office.
-  Choose LED light with regards to efficiency. They are durable and reduce the power consumption.



3.4 RENOVATION

When you renovate an office space, you have many options to avoid chemicals by choosing the right wall paint, flooring and carpets and thus create a healthy and environmentally friendly atmosphere.

The chemicals you can avoid are for example azo dyes and organophosphate in your wall paint, phthalate as a plasticizer and formaldehyde in the glue used to attach PVC flooring or brominated flame retardants in your curtains and carpets. When those hazardous substances evaporate, they not only have a negative impact on the environment but can also worsen the air quality in the office room and thus be a hazard to our health when we breathe it in all day.



3.4.1 Flooring

Have a look at the material of your office-room-floor

The following floor types are all likely to contain hazardous substances.

Floor material	Number of rooms with the flooring
Laminate	
Vinyl	
Synthetic rubber	
PVC	






Choose your flooring with care

-  Avoid laminate, vinyl (PVC) and synthetic rubber as well as floor coverings that are glued down.
-  Untreated or treated with eco-labelled products.
-  Favour wood floors which are oiled, waxed, or treated with water-based stain.
-  Wooden floors should be made of European woods and not of tropical wood.
-  Choose wood flooring from sustainable forestry (FSC or PEFC certified), bamboo, cork, linoleum or natural rubber and ask the supplier or manufacturer how it has been treated.
-  Make sure that impact sound insulation and anti-slip underlays also do not contain formaldehyde, mineral solvents, plasticisers or volatile compounds.
-  Look for eco-labels such as Blue Angel, EU Ecolabel or Nordic Swan (page34).

Carpets

Count the carpets made of natural and synthetic fibre

Material	Number
Natural fibre	
Ssynthetic fibre	

-  Avoid halogenated polymers (PVC), azo-dyes, PFAS or biocides in your carpet.
-  Ideal are carpets made of natural fibre.4 (jute, cotton, sisal or linen.
-  Choose carpets with eco labels such as Blue Angel, EU Ecolabel or Nordic Swan (page 34).
-  Since the maintenance and lifespan of floor coverings has a strong ecological and financial impact, it is necessary to create a cleaning concept beforehand.
-  Clamping and tightening avoids emissions that can result from sticking the carpet.

Have you got PVC flooring in your office and do not want to replace it right away? No worries! There are still many other ways to reduce the emissions of hazardous substances in your office besides the flooring. If you want to feel safer anyway, put carpets on top to avoid chemical fumes. But pay attention to the carpet material! And also make sure that the room temperature is not over 21°C.




3.4.2 Wall material

Choose your wall material and paint carefully






Select water-based products free from organic solvents and free from: VOC like Texanoldiisobutyrate (TXIB) or plasticizers like Phthalates, glycol compounds, alkylphenol ethoxylates, organohalogen compounds, azo dyes (which break down to carcinogenic amines), biocides, isothiazolinones, formaldehyde and heavy metals.

Pay attention to the correct disposal

The chemical production and subsequent evaporation of wall paints is as harmful to our environment as it is to us, which is why a thoughtful purchase is not only in our own interest. But whether chemical wall paint or not, the correct disposal is the be-all and end-all with regards to nature!

 Dispose of leftover paints, varnishes and building materials at the recycling centres of the municipal cleaning service. Never dispose of varnishes and paints in the sink or toilet!

Recommendations

-  Recommended labels are EU Ecolabel, Blue Angel (page 34).
-  Avoid coloured wallpapers. These usually contain many hazardous substances such as formaldehyde which can cause damage to the nervous system and headaches.
-  Avoid washable wallpapers as they are often made from plastic materials and might contain plasticizers. They are also less breathable and thus prone to increase the risk of mold growth.
-  With both conventional and eco-certified wall paint, you should allow the paint to dry for at least 36 hours after painting, ventilate well and do not enter the room. It is even better and allergy-friendly not to use the room for a fortnight, as the wall paints release asthma- and allergy-triggering and allergy-causing compounds. This applies to allergy sufferers as well as non-allergy sufferers.
-  Use brushes and rollers to apply varnish and paint instead of spray cans, as sprays can be easily inhaled and negatively affect your respiratory tract.

3.5 KITCHEN

Before consumption, our food gets into contact with many materials - the packaging in the supermarket, the containers we use for storage, the cooking utensils we use to prepare it and finally our crockery and cutlery. Many of them contain hazardous substances depending on the desired function. For example, additives such as plasticisers, stabilisers or dyes are added to the material. Under certain circumstances, for example heating or freezing, but even just through simple storage, those hazardous substances can dissolve and pass into our food. Therefore, it is important to choose our food contact materials wisely to protect our health.

Moreover, food contact materials are not only problematic in terms of their hazardous ingredients, but also from a waste perspective. Approximately 36% of plastic pollution in the oceans is from single-use food contact materials. The good news is that with a few simple steps we can greatly reduce the risk of ingesting chemicals and creating waste.



3.5.1 Kitchen Utensils



In the following two lists you will only find materials that contain potentially hazardous substances.

Take a close look at the materials of your kitchen utensils.	Number	What alternatives can you replace it with in the future? Are there reusable solutions?
Estimate in % how much plastic cutlery you own		
Estimate in % how much plastic crockery you own		


Which of these products are used in your company?


Material	Number	What are the more sustainable alternatives?
Disposable plastic:		
– Straws		
– Plastic cutlery		
–		
–		
–		
–		
Plastic cooking utensils:		
– Chopping boards		
– Cooking spoons		
–		
–		
–		
Pans with anti-stick coating:		
– Teflon (PTFE)		Choose pans made of stainless steel, ceramic or cast iron.
–		
–		
–		
–		
–		
Silicone:		
– Baking tins		Heat silicone before use (see box at right).
– Dough scrapers		
–		
–		
–		
–		
Bamboo composite:		
– Cups		
– Cutlery		
– Dishes		
–		
–		
–		


Avoid plastic products as good as possible

-  Buy products such as cutlery and crockery, spatulas or cooking spoons made of wood, glass, porcelain or steel. Avoid products made of plastic, as dangerous additives (hardly degradable, bioaccumulative, toxic and hormonally active chemicals) can be released from the plastic when it is heated.
-  Use chopping boards made of wood since plastic chopping boards can release microplastics.

Choose the material carefully

 Bamboo composite materials, which are used for example in reusable takeaway coffee cups, plates and cutlery, are pressed into shape with a specific resin. It is quite common for this resin to consist to a large extent of melamine, which is a harmful substance. Especially if the bamboo tableware is exposed to heat above 70°C, formaldehyde can be released from the melamine. It is better to avoid such products! Solid bamboo wood, without additives, however, is safe.

 Silicone is safe as long as it has been heated before first use (4 hours at 200°C). Many manufacturers avoid this costly step, so you should heat your items before use.

 Is the cake made in-house at your company? Choose cupcake moulds and baking paper with eco-labels instead of Teflon moulds with an aluminium base, or paper with a PFAS surface treatment. If it is possible, use oil instead of baking paper.



The practical non-stick pan contains plastic in the form of a Teflon coating. When heated to high temperatures, the pan releases toxic fumes that cause nausea and dizziness when inhaled. When worn, parts of the plastic come off and get into the food.

- Buy pans without a non-stick coating and use stainless steel, cast iron or ceramic utensils instead. If you have already got one, make sure they don't get scratched and never heat above 250 degrees.








3.5.2 Storage

Packaging fulfils an important function: it is intended to preserve food for longer and protect it from damage. However, it becomes problematic when food is stored in containers that are not made for this purpose or when their use leads to the release of hazardous additives. Example: Plastic containers are often used to store hot and greasy foods - these forces the chemicals to migrate into the food and should be therefore to be avoided at all costs!



How do you store your food at your office kitchen/cafeteria?

Storage Material	Number
Unpacked	
Disposable plastic	
Reusable plastic	
Paper carton	
Glass	
Ceramic	
Stainless steel	
Cotton bag	
Wood	
Aluminium	
Plastic wrap	
Styrofoam	

-  Avoid aluminium! Aluminium can be unhealthy if it comes into contact with your food, especially if the food is greasy and acidic.
-  Use wax wrap instead of plastic wrap and aluminium foil or simply store your food in a bowl and put a lid (e.g. a little plate) on top.
-  Replace old or broken plastic items with new ones that are made of Glass, ceramic, or stainless steel (for example lunch boxes). Untreated wood and cotton (eco-certified) are also materials that are safe to come into contact with your food. Do not heat your food in plastic containers and do not put hot, greasy, and acidic food in plastic containers. These properties can promote the migration of hazardous substances.
-  Take a look at the recycling codes and pictograms for proper usage of plastic products (page 32).
-  Do not use disposable plastic more than once. Otherwise, the plastic becomes porous and can release hazardous substances into your food and allow bacteria to build up.
-  Fill food packed in cardboard into containers made of glass, ceramic, stainless steel since it can contain mineral oil which can trigger inflammation in the liver, lymph nodes and heart valve.
-  Avoid Styrofoam (e.g. Polystyrene containers), especially in contact with hot and greasy food. For its production, the carcinogenic substance benzene is used which can damage the organs and is suspected of causing genetic defects when exposed frequently and for a long time¹³.




3.5.3 Electronics and Energy


Fridge, kettle and microwave have a big impact on our everyday life since they make storing and preparing food and drinks much easier. But considering that they are in direct or indirect contact with our food, we must choose them carefully and use them properly.



Electronic device	Potential dangers
Plastic kettle	– Can contain plasticisers and may release micro-particles and BPA when heated
Microwave	– Dangerous leakage radiation in older/fragile models – Plastic housing
Dishwasher	– Plastic housing – Rinse tabs can contain hazardous substances
Fridge	– Refrigerant and foaming agents can release hazardous substances – Plastic housing
Coffee machine with capsules and coffee pods	– Made from plastics – High waste, high energy consumption


Which material is your kettle made of?	
---	--


 Choose alternatives made of glass or stainless steel, or even a kettle that you heat on the cooker (made entirely of e.g. borosilicate glass for nickel/metal allergy sufferers) to avoid the emissions of hazardous substances.


 Pay attention to durability and energy efficiency.

 Look for the recycling codes (page 33).

	Yes	No
Have you got a microwave?		

 Pay attention to low leakage radiation, recyclable construction and low stand-by power consumption (e.g. intelligent power-saving functions).

 Dispose old appliances only at municipal collection points/recycling yards.




 Do not use plastic containers for heating meals, rather use glass or ceramics. If plastic is used, look for the symbol „Suitable for microwave“, which is three wavy lines (never put metal in the microwave!).

Are your refrigerators and dishwashers efficient?

Refrigerators are among the largest consumers of electricity in the kitchen¹⁴. And when it comes to dishwashers, there are some recommendations for sustainable use as well.




- Choose appliances with low power consumption that are as large as necessary and as small as possible to avoid wasting energy.
- Dispose of old appliances properly at the municipal collection point.

Refrigerators:

-  Regulate the temperature yourself (7° in the refrigerator is sufficient according to the Federal Environment Agency).
-  Do not place refrigerators near heat sources or expose them to direct sunlight.
-  Too much ice on the walls increases electricity consumption, so you should defrost the appliance regularly¹⁵.



Dishwasher:

-  Economy or short programmes are often sufficient and pre-rinse is normally not necessary.
-  Do not leave the dishwasher in stand-by mode but switch it off completely when not in use.
-  Use ecological rinsing tabs.

What kind of coffee machine have you got?

- Favour filter coffee machines, press filter jugs or hand filters („Pour Over“ method or so-called „drippers“, for example made of porcelain or Chemex machines made of glass).
- Coffee filters are often compostable, but permanent filters are a good alternative to reduce waste production (easy to wash out, preferably not made of plastic, but e.g. of microfine stainless steel mesh).
- Set an example: Disposable tableware (especially plastic) and coffee capsules should be an absolute no-go on your procurement list!
- If you currently have a capsule machine, use reusable capsules (made of stainless steel, 100% recyclable material).



CHAPTER 4: CLEANING

To maintain a pleasant working atmosphere in office spaces, cleaning is a very inconspicuous and yet important part of daily work. This is where a major problem arises. **The balancing act of thoroughly removing chemically contaminated dirt and not flooding the office with cleaning agents is not always easy.** In the following chapters, we will be showing you ways in which you, as an office worker or the chairperson of an office, can find a suitable middle ground to protect your co-workers, natural resources, and the environment from hazardous substances.

As office manager, you are responsible for the safety of your employees. Keep cleaning agents stored in a separate room from your employees to prevent the absorption of hazardous substances from the cleaning agents through the lungs and skin. Do not store them in places where the cleaning agents could come into contact with food. It is often also worthwhile to display data sheets with facts about the cleaning agents. Many of the staff have little or no idea about the dangers posed by the chemicals contained in the cleaning agents, the hazard symbols and eco-labels on the bottles. Instructions on how to use the cleaning agents safely can also be very helpful (A list of Do's and Don'ts when cleaning can be found further down in the chapters).

You can also protect your employees from hazardous substances in other ways:

Provide sufficient protective clothing according to the instructions on the products' protection sheet. This includes, first and foremost, suitable gloves. Caution: Do not use the commercially available thin latex gloves used in hospitals. According to the University Hospital Dresden, these offer good protection against viruses and bacteria, but not against cleaning agents. The gloves are usually too thin to protect the skin from the chemicals. Instead, it is recommended to provide cleaning gloves made of, for example, nitrile and lined with cotton. However, chemicals are not only absorbed through the skin, they also enter the body through the mucous membranes. Protective goggles and medical masks can prevent unpleasant skin irritations and allergic reactions¹⁶.





Hiring cleaning companies is worthwhile, especially for open-plan offices. Include environmental criteria in the contract so that you can ensure that cleaning is done with products that are healthy and environmentally friendly. Look for the following criteria when planning to bid for a cleaning company:

- All cleaning agents, hygiene products and other products used, such as trash bags, should be labelled with a recognized environmental label (such as EU Ecolabel, Blue Angel, ECOCERT, FSC or equivalent). Staff should be trained in the use of these products, especially the dosage and application of cleaning agents.
- If possible, choose ethyl alcohol-based disinfectants (ethanol), as these have the least hazardous properties.
- In general, microfiber cloths are suitable for cleaning, as they are very absorbent, and no detergents are needed for „normal“ dirt.
- Be sure to replace cleaning cloths and other utensils regularly, as hazardous substances accumulate in them after repeated use.

It is difficult to completely avoid hazardous substances when cleaning. However, if you pay attention to certain aspects, you can significantly reduce exposure.

Do's	Don't's
Wear protective clothing (as described above)	Never mix cleaning agents together as they could react with each other and release toxic fumes.
Use as little detergent as possible, often just water, sodium bicarbonate and vinegar suffice.	In the best-case scenario do not use disinfectants.
If disinfectants are necessary, choose ethyl alcohol (ethanol) based disinfectants as they have the least hazardous properties.	
Make your colleagues and superiors aware of the problem	Although hazardous substances can be found in almost all cleaners: Use natural alternatives or eco-certified cleaning agents regularly. The removal of dust contaminated with chemicals is especially essential.
Ventilate the room 2-3 times a day	Avoid cleaning too often: breathing in too many hazardous fumes from the products is not good either. Find the golden mean.
This way you not only beautify the room, but also clean the office air: Place plants. You will find a list of plants that clean the air in chapter 6.	

CHAPTER 5: TIPS FOR EMPLOYEES

Hazardous substances are substances that are likely or proven to be carcinogenic, mutagenic, persistent, bioaccumulative, endocrine disruptors, or toxic. They are often legal in small quantities, or until there is a better substitute on the market. Therefore, it is advisable to protect yourself as a preventative measure. We may not see them, but we are actually surrounded by various chemicals every day. Therefore, an interaction of the substances in our body and in the environment can occur, the so-called „cocktail effect“. What effects this has on our body and the environment is still largely unknown.

Individual hazardous substances can be shown to have specific effects in the human body. **They can be responsible for headaches, allergies, cancer, reduced fertility, or hormone disorders.** Due to their chemical structure, these substances are mistakenly recognized by the human body as

„hormones“, act similarly to the body’s own hormones, and thus upset our finely balanced hormone system. Even the smallest amounts are sufficient for an effect to become visible.

Hazardous substances also enter the environment through our wastewater and air. Modern wastewater treatment plants cannot completely filter out all substances. This is one reason that hazardous substances are detectable in nature. This means that the substances can also make their way back to us in drinking water and food, as well as disturbing biodiversity in ecosystems. Hazardous substances can have similar negative effects on animals as they have on humans.

Read Chapter 1 of this brochure for more background information.



**Print this out
for your office
you should!**

PROTECT YOURSELF AND THE ENVIRONMENT

At your desk

Keep electronics and cables away from heaters and the sun!

Insulation on cables, as well as electrical equipment itself, often contain additives, such as plasticizers and flame retardants. The warmer it is, the more chemicals are released/outgassed.

Dust!

Studies have proven that hazardous substances accumulate especially in dust. It acts like a toxin magnet. When the air is stirred up, the dust particles enter our bodies through the lungs. It is especially important to dust near electronic devices. Therefore, do this several times a week.

>> <https://t1p.de/chemicals-in-dust>

Clean ecologically!

Cleaning products usually contain many fragrances and aggressive detergents or disinfectants. They can lead to allergies and skin irritations. Therefore, the motto is less is more. Only treat with cleaning agents the areas that actually need to be cleaned and/or disinfected. When needed, use cleaning agents that are certified with an environmental label (e.g. Blue Angel, EU Ecolabel). Home remedies such as vinegar and baking soda are effective and sustainable alternatives. A recipe for an all-purpose cleaner can be found in our DIY tutorial.



Turn off electronic devices completely when not in use.

This will reduce the temperature and reduce the emission of pollutants.

In the office space

Keep room air temperature below 21°C!

This ensures that fewer hazardous substances will be released.

Decorate the office with plants!

Many plant species can filter pollutants from the air and beautify the office at the same time. Some examples are listed here in the table below.

Ventilate often!

By opening all windows fully for 3 minutes, you allow a complete exchange of air without letting the walls cool down. Dust and released chemicals are thus removed from the office.

During the lunchbreak

Items which come into contact with your food everyday can be sources of hazardous substances. These substances can then be absorbed into your body through food that has come into contact with the items. By taking simple and inexpensive steps, you can reduce your exposure in a very short time.

Avoid (plastic) packaging!

Avoid packaged foods as much as possible. Especially if they are wrapped in plastic, aluminium, or coated cardboard. Many restaurants allow you to bring dishes in a container you bring yourself. If you cannot avoid contact with packaging, reduce the contact area and contact time as much as possible.

Avoid to-go cups made of cardboard or plastic!

Cardboard cups for coffee and other hot beverages to-go have a thin plastic coating on the inside and create vast amounts of waste. Cups made of plastic, or a bamboo mixture can release hazardous substances into the beverage under certain conditions. Therefore, try to reduce their use or bring your own ceramic, glass or stainless-steel cup.

Do not use plastic containers in the microwave!

Hot, fatty and acidic foods promote the migration of chemicals into the food. Even though some plastic containers are labelled as microwave-proof, chemicals can still migrate in small amounts with every use. Simple fixes include transferring to a plate or using glass jars.

Use your voice!

Actively advocate for more sustainable and less harmful product options in your office. You will learn tips for the kitchen at home in this video:



Watch our video on hazardous substances!



CHAPTER 6: GENERAL TIPS FOR A HEALTHIER WORK ENVIRONMENT

6.1 Plants

Plants not only bring a little colour into the sometimes somewhat grey, everyday office life and have a positive effect on our psyche, they also improve the indoor climate. They filter pollutants from the air and contribute significantly to maintaining the health of office workers. As office managers or employees, decorate your workplace with the plants listed below and create a more pleasant working environment.¹⁷ Make sure you buy eco-certified plants that are not contaminated with pesticides.



Plant	Properties
Spider plant (Chlorophytum comosum)	Absorbs formaldehyde, filters xylene
Jade plant, lucky plant or money tree (Crassula ovata)	Filters benzene, formaldehyde, trichloroethylene and xylenes
Dragon Tree (Dracaena sp.)	Filters benzene, formaldehyde, trichloroethylene and xylenes, but: toxic!
Bromeliad (Bromelia sp.)	Filters actones, benzenes and formaldehydes
Schefflera (Schefflera arboricola)	Filters formaldehydes, benzene, xylene and nicotine, donates oxygen and air humidity
Peace lily (Spathiphyllum sp.)	Can remove smoke odor from the room, but: toxic!
Weeping fig (Ficus sp.)	Filters formaldehydes and xylenes
Chrysanthemum (Chrysanthemum indicum)	Filters benzene, formaldehyde, trichloroethylene and xylenes, but: toxic!
Philodendron (Philodendron sp.)	Filters formaldehyde. Absorbs high amounts of moisture and releases it in combination with oxygen.
Devil's tongue (Sansevieria sp.)	Filters benzene, formaldehyde, trichloroethylene and xylenes, but: toxic!

6.2 Pictograms for the classification of hazardous substances

Hazard pictograms visualize the hazardousness of a substance and are part of the international “Globally Harmonized System of Classification and Labelling of Chemicals (GHS)”.










The rule of thumb is easy: avoid all substances that are labeled with one of the symbols below:

Symbol	Risks
	TOXIC Can cause death or acute toxicity even with brief exposure to small quantities.
	HARMFUL, IRRITANT Corrosive or irritant. Can cause less extreme damage to our health or damage to the ozone layer. Most detergents, including ones with eco-labels have this symbol. It is ok to use these products but act with caution as they may cause irritation to skin or eyes upon direct exposure or exposure to fumes/aerosols
	CORROSIVE Corrosive damage to metals; harmful for skin and eyes. Do not swallow.
	HAZARDOUS FOR THE ENVIRONMENT May cause damage to the aquatic environment.

6.3 Recycling codes

Plastic food containers and packages are usually (but not always) marked with an arrow symbol and a number: this is the Recycling or Resin Identification Code. The code numbers 1 to 6 indicate specific pure plastic polymers, while number 7 covers all other types of plastics and mixtures. Polyvinyl chloride (PVC, code 3) and polystyrene (PS, code 6) are made from toxic monomers, and often contain hazar-

dous additives, processing aids and by-products from production. Therefore, they should be avoided, especially in contact with food. The other polymers contain generally less hazardous substances that might be harmful, but again: that is strongly dependent on the individual production processes.

Code	Name/Typical products	Potential health effects	Recycling and incineration
 PET	Polyethylene terephthalate Drinking bottles, food and health care packaging, polyester in numerous textiles	PET bottles can, especially in the presence of heat, leak small amounts of the toxic metalloid antimony (below the legal thresholds) and becomes porous quickly. Disposable PET bottles may contain acetaldehyde, a substance that can change the taste of water and is classified by the EU as potentially carcinogenic. That's why single-used PET bottle should be used only one time – do not refill!	Recyclable
 HDPE	High-density polyethylene Coating for milk, water and juice containers, and food and cosmetic packaging	Avoid exposure to direct sunlight, as that may cause leakage of the endocrine-disrupting substance nonylphenol.	Recyclable
 PVC	Polyvinyl chloride Hard PVC: Drains, window profiles, oil/vinegar bottles Soft PVC: Floor coverings, hoses, synthetic leather, vinyl carpets, swimming rings, toys	Avoid: extremely unsafe! PVC can leak a variety of toxic chemicals throughout the product life cycle (bisphenol A, lead, mercury, cadmium and phthalates) and can cause serious health and environmental problems. The raw material vinyl chloride is a known carcinogen.	Recycling is very difficult due to the common use of hazardous plasticizers, and its incineration and disposal may produce numerous toxins (carcinogenic, persistent organic pollutants).
 LDPE	Low-density polyethylene Tissue paper packaging, cling film, inside coatings of milk containers	Avoid exposure to direct sunlight, as that may cause the leakage of the endocrine-disrupting substance nonylphenol.	Recyclable
 PP	Polypropylene Food containers, straws, baby bottles, microwave dishes	Relatively stable and heat resistant. Over longer periods, stabilizers can leak from the material.	Recyclable
 PS	Polystyrene Styrofoam for transporting meals, disposable cups/lids/cutlery, bicycle helmets, clothes hangers	Avoid: very unsafe! In the manufacturing process, benzene, a known carcinogen is used. It may contain hormone-disrupting phthalates. Styrene, the precursor to polystyrene, is a harmful substance which can migrate from the food packaging into the food, especially when the food is greasy, hot or acidic.	Recycling is difficult and incineration very problematic due to harmful substances.
 OTHER	Other Water coolers, drinking bottles, microwave dishes, kitchen appliances, contact lenses, thermal paper	Avoid! Layered or mixed plastics with unknown polymers. Better avoid.	Not recyclable
 OTHER	Other: Polyurethane (PU) Insulations, often soft/foamed products, rubber	In some cases, the toxic substance isocyanate is used in production.	Recycling is difficult and incineration very problematic due to harmful substances. During disposal, harmful substances (e.g. isocyanate, hydrocyanic acid and dioxins) can be released.
 OTHER	Other: Polylactic acid (PLA) Food packaging, disposable cutlery	Type of polyester produced from renewable resources (e.g., corn starch) and often named "bioplastics"; PLA is used on its own but also occurs in a mix with fossil based polymers; often as blends with petroleum-based polymers and numerous additives.	Some are biodegradable in industrial composters (NOT in private composters!)

6.4 Ecolabels

Overview about commonly used ecolabels

Labels for cleaning agents, cosmetics and other products



The **EU Ecolabel** serves as a cross-border environmental label, helping consumers to identify products and services that are less polluting. Here, the entire product life cycle is considered, from the extraction of raw materials to production, use and disposal. The relevant product groups include paints and varnishes, detergents, clothing and footwear, paper products and soil improvers. The underlying criteria are updated continuously.



The **Blue Angel** was initiated by the German government. It identifies products that are more environmentally friendly than others. The Blue Angel considers both the concerns of environmental and consumer protection. Therefore, it is awarded to products and services that are not only particularly environmentally friendly but also meet the high standards of occupational safety and serviceability. Many product groups (more than 12,000 products and services from around 1,600 companies) are certified with the Blue Angel, e.g., paints, coatings, furniture, technical equipment, building materials, wood treatment products, detergents, paper products as well as clothing and footwear.



The „**Nordic Swan**“ is the official environmental label of the Nordic countries. Similar to the EU Eco-label, the impact of a product on the environment is assessed throughout the products entire lifecycle. So far, products from 61 product groups are covered; amongst others these include cosmetics, detergents, office and hobby products, toys for children, furniture, flooring products, hotel, restaurant products, conference facility products and textile services.



Referred to as „**Good Environmental Choice**“ in English. This label focuses on fairly widely used products and services that have a major impact on the environment. The Nature Conservancy began with campaigns for unbleached paper, mercury-free batteries, and environmentally adapted laundry detergent and has expanded to several other products and services.

Before a product or service is allowed to display the Good Environmental Choice ecolabel it must meet certain criteria. It is not just consumer goods that affect the environment. Since factors such as travel and electricity consumption also have major environmental consequences, the Swedish Society for Nature Conservation has included services in its eco-labelling program. It has criteria for passenger transport, goods transport and electricity supplies.



The Ecolabel „**Vitality Leaf**“ is the only Russian ecolabel recognized at the global level. It is a member of the Global Ecolabels Association (GEN) and operates in accordance with ISO 14024. It is a Type I ecolabel. Such ecolabels are the most reliable because they involve a comprehensive assessment of the entire product life cycle. The „Vitality Leaf“ on the product guarantees that the raw materials, the finished product, its packaging, as well as the entire production process have been independently verified for compliance with eco-standard requirements. Vitality Leaf was created in 2001 under the patronage of the Ecological Union, one of the leading Russian non-profit organizations in the field of environment.



Ecocert is a certification body for sustainable development. It is an inspection and certification organisation established in France by agronomists aware of the need to develop environmentally friendly agriculture. It strives to offer some form of recognition to those committed to this method of production. From its creation, Ecocert is specialized in the certification of organic agricultural products. Ecocert has contributed to the expansion of organic farming.



The **Natrue** label is a guarantee for cosmetic products. Their goal is to promote and protect natural beauty and skincare products. Any product with the Natrue label is intended to be as natural as possible, using natural and organic ingredients, soft manufacturing processes and environmentally friendly practices.



The makers of products marked with the **BDIH** „Certified Natural Cosmetics“ label use natural raw materials such as plant oils, fats and waxes, herbal extracts and essential oils and aromatic materials from controlled biological cultivation or controlled biological wild collection. In addition to the careful selection of raw materials, the ecological impact of each product plays an important role in the criteria for this label.

Labels for sustainable wood



The **Forest Stewardship Council**® (FSC) promotes environmentally appropriate, socially beneficial, and economically viable management of the world's forests.

The Programme for the Endorsement of Forest Certification (PEFC) is an international non-profit, non-governmental organization dedicated to promoting Sustainable Forest Management (SFM) through independent third-party certification. It works throughout the entire forest supply chain to promote good practice in the forest and to ensure that timber and non-timber forest products are produced with respect for ecological, social and ethical standards

Labels for furniture, electronics & building materials



TCO Certified is an international sustainability certification for IT products and includes a wide range of criteria ensuring that the manufacturing, use and recycling of IT products is carried out with regard to environmental and social responsibility.

TCO Certified combines requirements for social responsibility at the facilities where the product is manufactured, user safety and ergonomic design as well minimal environmental impact (including chemical content) for both the product and its production during the whole life cycle.

The certification includes verification that the sustainability requirements are followed.



The **Cradle to Cradle**™ products Program gives companies the possibility to demonstrate efforts in eco-intelligent design. Cradle to Cradle Certification is a third-party sustainability label that requires achievement across multiple attributes:

- use materials that are safe for human health and the environment through all use phases
- product and system design for material reutilization, such as recycling or composting
- use of renewable energy
- efficient use of water, and maximum water quality associated with production
- company strategies for social responsibility.

The Cradle to Cradle certification is a five -tiered approach consisting of Basic, Bronze, Silver, Gold, and Platinum levels. This certification program applies to materials, sub-assemblies and finished products.

6.5 Overview of the product groups and corresponding labels

	EU Eco-label	Blue Angel	LGA-schadstoffgeprüft	Oko Control	Nordic Ecolabel	FSC (100%, Mix, Recycling)	Ecocert	Nature plus
Furniture		x	x	x	x	x		
Flooring	x	x	x	x	x	x		x
Paints, varnishes and wallpapers	x	x	x					x
Electro and IT	x	x						
Detergents and hygiene articles	x	x			x		x	
Stationery: Folder, printer paper	x	x	x		x	x		
Pens and hole punch, stapler and small material		x			x			
Inks and toners		x	x					





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