REWE Group Detox Program
Hazardous Substances Fact Sheet

Information on Definition, Identification and Substitution of Hazardous Chemicals
# Content

## Part 1: Background and REWE Groups Detox commitment ............................................ 3

1. Background....................................................................................................................... 3
2. Leaders in the Detox movement..................................................................................... 3
3. Hazardous substances in the REWE Group-Detox program ....................................... 3
4. Legal regulations and intergovernmental goals .......................................................... 5

## Part 2: Definition Hazardous Chemicals ........................................................................ 5

5. Acute and chronic toxicity............................................................................................... 5
6. Co-factors increasing the hazardous potential of a toxic substance............................... 6
7. Are there safe doses for hazardous chemicals? .............................................................. 6
8. Hazard or Risk?.............................................................................................................. 7

## Part 3: Identification and Substitution of Hazardous Chemicals ........................................ 7

9. Identifying hazardous substances and non-hazardous alternatives ......................... 7
10. Identifying high risk materials .................................................................................... 8
11. Safety data sheets (SDS)............................................................................................. 8
12. Waste water.................................................................................................................. 9
Annex I................................................................................................................................... 10
Annex II............................................................................................................................. 14
Part 1: Background and REWE Groups Detox commitment

1 Background

About 25% of the global production of chemicals is used in the textile industry. Thousands of chemicals are used in textile processing, especially in textile wet processing, and many of these are known to be harmful to human (and animal) health. In an assessment by the Swedish Chemical agency, 9% (165 of 1900) chemicals that were identified as being used in textile production showed hazardous properties. Such substances and properties are the object of the REWE Groups Detox program.

2 Leaders in the Detox movement

In 2015 already 31 leading international fashion brands and retail companies committed themselves to phase out hazardous substances in their supply chains. The nongovernmental organization Greenpeace and its “Detox”-campaign which started in 2011 played a key role in this development. The campaign is still active and wants to convince even more companies to participate. “Detox” already became a common denominator for international apparel and shoes industry. Many companies like REWE Group ask their suppliers to commit themselves to a Detox-plan. The majority of REWE Groups suppliers for private label apparel products, shoes and home textiles have signed such an agreement. Since 2014 REWE Group and committed suppliers work closely together in order to achieve the goals and to make sure that by 2020 there is a safer and environmentally friendly production of textiles and shoes.

Several highly competent service providers, who cooperate with REWE Group can help suppliers to assess the current situation at a factory, to carry out testing and to generate data needed. They also are able to provide training and support to factories who want to phase out hazardous chemicals.

3 Hazardous substances in the REWE Group-Detox program

“A hazardous chemical is one which is a health hazard or a physical hazard. Being designated as a health hazard means that there is statistically significant evidence that acute (short-term) or chronic (long-term) health effects may occur in humans exposed to that particular substance. The term 'health hazard' includes chemicals which are carcinogens or otherwise toxic or highly toxic agents, which damage the lungs, skin, eyes, or mucous membranes. A chemical is designated as a physical hazard when there is scientifically valid

---

3 http://www.greenpeace.org/international/en/campaigns/DETOX/timeline/
evidence that it is a combustible liquid, a compressed gas, explosive, flammable, organic peroxide, oxidizer, pyrophoric, unstable (reactive), or water reactive.”

The REWE Group defined hazardous substances in its Detox-commitment following a Greenpeace-Definition: “Hazardous chemicals mean all those that show intrinsically hazardous properties: persistent, bioaccumulative and toxic (PBT); very persistent and very bioaccumulative (vPvB); carcinogenic, mutagenic and toxic for reproduction (CMR); endocrine disruptors (ED), or other properties of equivalent concern, (not just those that have been regulated or restricted in other regions).

This fact Sheet shall help to clarify the general meaning of this commitment and give a short introduction into the issue of hazardous substances.

The current MRSL (Manufacturing Restricted Substance List) which is part of REWE Group’s Detox-commitment lists several specific hazardous substances which shall be phased out in the production of private label apparel products, home textiles and shoes of the REWE Group by 2020.

There are 11 groups which shall be phased out with highest priority and other groups which are also subject for phase outs. For all of them, separate factsheets will be available.

---


4 Legal regulations and intergovernmental goals

Suppliers of the REWE Group must assure that they produce in full accordance with the legal requirements of the country where the production takes place, and the legal provisions of the European Union regarding final products. A comprehensive list with international regulation for individual hazardous substances can be found on the website of the American Apparel & Footwear Association’s (AAFA).

Intergovernmental organizations like the UN set comprehensive goals to minimize and phase out the production and use of hazardous chemicals in international declarations and conventions. Legally binding restrictions for hazardous chemicals were set by national and regional chemical legislation like the EU chemicals legislation “REACH”. REACH declares substances with the following hazard properties as “Substances of Very High Concern” (SVHCs). Their use is also not allowed in the supply chains of the REWE Group.

- Substances meeting the criteria for classification as carcinogenic, mutagenic or toxic for reproduction category 1A or 1B in accordance with Commission Regulation (EC) No 1272/2008 (CMR substances)
- Substances which are persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) according to REACH (Annex XIII)
- Substances identified on a case-by-case basis, for which there is scientific evidence of probable serious effects that cause an equivalent level of concern as with CMR or PBT/vPvB substances

Such substances shall only be put on the EU market for specific uses if authorized by EU authorities. The EU currently extends its bans of hazardous substances on imported textiles, starting with a prohibition of Nonylphenolethoxylates.

Part 2: Definition Hazardous Chemicals

5 Acute and chronic toxicity

Primarily a substance can be called hazardous if it shows toxic effects to humans or other living creatures as animals, fish or plants. There are substances which are acute toxic and show their effects directly after exposure, like cyanide which can kill within minutes. Many substances with acute toxicity were already prohibited or phased out for commercial and private uses by authorities and industry because of the obvious risk.

The effects of substances with chronic toxicity do not emerge directly after exposure but after a longer time span. In addition chronic effects may last for a long time and in some cases they may even affect the following generations. Carcinogenic substances for instance may cause a small alteration in a body cell today. And after decades such a little damage may become a deadly cancer. Today, most of the hazardous substances which are on the

---

5 https://www.wwear.org/rsl/ https://www.wwear.org/assets/1/7/RSL_v16_final_UPLOAD.pdf
6 E.g. the “Rio Declaration on Environment and Development”, the Stockholm, Rotterdam and Basel conventions.
Detox-lists of enterprises and nongovernmental organizations belong to this group with chronic toxicity. Some important types of chronic toxicity are described in Annex I.

6 Co-factors increasing the hazardous potential of a toxic substance

Not only toxicity makes a substance hazardous. There are “co-factors” like persistence and the ability to bioaccumulate which can increase the harmful effects of a substance dramatically:

**Persistent** is a term applied to chemicals that do not break down easily in the environment or in the bodies of animals and humans. Persistent substances can be transported long distances through air and ocean currents. Being deposited in soil and silt they can be absorbed by plants and microorganisms ending up in the food chain. After being ingested with the food they tend to remain in organs and body tissues of animals and humans for decades.

**Bioaccumulation** is the build-up of a substance in an individual organism or in the food chain.

So called „PBT-chemicals” are toxic, persist in the environment and bioaccumulate in food chains at the same time. Thus they pose high risks to human health and ecosystems. The biggest concerns about PBTs are that they transfer rather easily among air, water, and land, and span boundaries of geography, and generations. As a result, once a PBT chemical is released into the environment it will accumulate and persist in fatty tissues of animals and end up in the food chain, concentrating on the top, affecting mainly predators such as fish, predatory birds and mammals (e.g. Polar bears, seals, whales), including humans. It is the phenomenon called biomagnification.

“vPvB-chemcials” are very persistent and very bioaccumulative and also have the ability to accumulate and persist in living organisms. Even substances with lower toxicity may become harmful if they are vPvB and build up to higher concentrations in human bodies.

7 Are there safe doses for hazardous chemicals?

Generally it is assumed that the toxicity of a substance depends on the dose. This rule is true for many substances with acute toxicity. But science knows in the meantime that there are some toxic chemicals which effects depend highly on “timing”. Some endocrine disrupting or reprotoxic substances for instance may not be of very high concern for normal adults. But if such substances get in touch with pregnant women, an embryo, fetus or a young child in the crucial time span when substances like hormones trigger the whole development or organs, body parts or mental functions, hormone-like chemicals can adversely change the whole differentiation of organs or change the brain development. This

---

11 http://www.epa.gov/pbt/pubs/aboutpt.htm
12 Already the 15th century physician Paracelsus stated: “Sola dosis facit venenum” http://www.britannica.com/biography/Paracelsus
is one reason why the exposure to low doses may still be a high risk. For many substances we do not know a “safe” dose, as it is the case with many mutagenic chemicals or radioactivity. The exposure to such substances should be as low as possible.

8 Hazard or Risk?

A hazard is anything that can cause harm, whereas risk is the potential that a hazard will cause harm. A hazard may not pose any risk unless one is exposed to enough of that hazard to cause harm. In theory the relationship between risk and hazard can be simplified as: \[ \text{RISK} = \text{HAZARD} \times \text{EXPOSURE} \]

In practice, a tolerable exposure (a “safe dose”) often is very hard to determine. Also, the actual exposure of a person to a hazardous chemical is very difficult to quantify. This makes exposure assessment somehow unreliable. From a precautionary point of view, a substance may be a candidate for a phase out already if it shows intrinsically hazardous properties, independently on the degree of exposure.

REWE Group committed itself primarily to follow the precaution principle: “This means taking preventive action before waiting for conclusive scientific proof regarding cause and effect between the substance (or activity) and the damage. It is based on the assumption that some hazardous substances cannot be rendered harmless by the receiving environment (i.e. there are no ‘environmentally acceptable’/‘safe’ use or discharge levels) and that prevention of potentially serious or irreversible damage is required, even in the absence of full scientific certainty.”

Part 3: Identification and Substitution of Hazardous Chemicals

9 Identifying hazardous substances and non-hazardous alternatives

In the MRSL of REWE Group some hundred hazardous chemicals are defined. It is a clear goal of the Detox program to phase out all hazardous substances in the relevant supply chains. In order to implement this goal, three measures must be carried out regularly by suppliers:

- All chemicals, chemical preparations and materials that are used by a factory must be listed in an “input or chemical inventory”. Relevant substances which are part of materials also must be identified. For each chemical a safety data sheet must be provided (chapter 8).
  - In a second step, all chemicals, preparations and materials must be assessed in order to identify potential hazardous substances.
- If a hazardous substance is phased out, it must be made sure that the alternatives are non-hazardous.

- Regular water and sludge tests must be conducted. For further information see our Guidance on Water and Sludge Test, which you can find on our website.

There are numerous tools to assess hazardous properties of substances available. In any case, only substances free from the hazardous properties described in this fact sheet may be used in the future. Options to assess the hazardous potentials of chemicals are the

- Chemsec Textile Guide – A three step process to identify and replace hazardous chemicals (http://textileguide.chemsec.org/)
- “Listoflist” by Subsport, (http://www.subsport.eu/listoflists)
- SIN-list by Chemsec, (http://sinlist.chemsec.org/)

Some means and tools to find alternatives to hazardous substances are:

- Contacting your current chemical supplier and asking for formulations with non-hazardous substances
- Using the Greenscreen database (http://www.greenscreenchemicals.org/)
- Using the CleanGredients database (http://www.cleangredients.org/home)
- Using chemicals that meet the Global Organic Textiles Standard (GOTS).
- Using chemical preparations certified under the OEKO-TEX® Eco-Passport system
- Using chemicals and processes that were published on the subsport database (http://www.subsport.eu/)

10 Identifying high risk materials

Besides chemical preparations, raw materials as rubber, leather or textiles, which are externally sourced by a factory, may cause a contamination of the supply chain and the final products by hazardous chemicals.

In addition, specific information on risk materials that are related to the individual groups of hazardous substances can be found in the substance-factsheets. If information from the sub-supplier or testing confirms that a material contain hazardous substances, they must be phased out or substituted by materials that are free of hazardous substances.

11 Safety data sheets (SDS)

Safety data sheets (formerly called material safety data sheets, MSDS) are an important carrier of information that must be passed on from a producer or trader to the buyer.

The United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS)\(^\text{14}\) defines which information must be included in a SDS. The GHS-requirements were also integrated in the EU Regulation No 1272/2008 on classification, labeling and packaging of substances and mixtures.

The “H”- or “hazard”-statements provided in the SDS are of high importance for the proper identification of hazardous chemicals being used in a factory. Therefore, suppliers must ensure that all SDS comply with the requirements of the EU-regulation mentioned. They may have to urge their own providers of chemical products to revise or upgrade SDS if they are not sufficient. Instructions can be found in the European Chemical Agency’s “Guidance on the compilation of safety data sheets”\(^\text{15}\). Full information to all 16 SDS-sections must be provided and chemicals must always be identified by name and CAS numbers. The 16 Sections are provided in Annex II.

12 Waste water

Discharges of waste water are in most cases the most relevant emissions of textile factories into the environment. The potential environmental hazard of such discharges is strongly influenced by the hazardous substances that are present in the waste water. In order to protect the environment and local communities from detrimental effects of waste water emissions, REWE Group also defines limit values for certain waste water-indicators and for single substances.

### Annex I

<table>
<thead>
<tr>
<th>Property</th>
<th>Effects</th>
</tr>
</thead>
</table>
| **Carcinogenic** | A carcinogen is a substance that may cause cancer or increase its incidence by inhalation, ingestion or skin absorption. Cancer is a disease characterized by uncontrolled growth and division of cells. These cells have the ability to invade the organ where they originate, to travel through the blood and lymph fluid to other organs and grow in them. More than 200 different types of diseases (malignant tumors) are included under the term cancer. The latency period of the disease, i.e. the time that elapses between exposure to a carcinogen and clinical detection of resulting cancer can extend for several years.  

| **Mutagenic** | Mutagens are substances which, if inhaled, swallowed or absorbed through the skin, may induce heritable genetic damage or increase its incidence.  

The new EU Regulation 1272/2008 (commonly known as CLP) identifies carcinogenic and mutagenic substances with the following hazard statements (H):  

H350: May cause cancer  
H340: May cause heritable genetic damage  
H350i: May cause cancer by inhalation  
H351: Limited evidence of a carcinogenic effect  
H341: Possible risk of irreversible effects  

| **Reproductive toxicity** | A reproductive toxicant or reprotoxicant will impair the ability to get children or cause irreversible harm to the offspring itself. Alterations include miscarriages, damage to unborn children’s development, alteration of breastfeeding capability, or negative inherited developmental effects. Legislation differentiates substances that are toxic for fertility and substances that damage development:  

**Toxic for fertility** are substances and compounds that may alter sexual behaviour reducing libido, causing erectile dysfunction and altering menstrual cycles. They can also damage ova and affect the quality of sperm or cause disorders in human reproductive organs.  

**Developmental toxicity** is associated with substances and compounds that can cause fatal damage to the unborn child, developmental |

---

16 Hazard statements (e.g. H350) must be provided by the producer or trader of a chemical or chemical preparation in safety data sheets (chapter 8) which they must pass on to their customers.  


disorders, innate disorders and childhood and adult health diseases due to prenatal exposure

Toxic substances on or via lactation can affect both mothers' milk and breastfeeding children. They may also affect female workers' by impairing their capability to breastfeed, reducing their milk production (endocrine disruptors) or passing on toxins to the babies. They are classified as substances of high concern in order to warn breastfeeding mothers about this specific hazard.

EU regulation 1272/2008 (CLP) identify reprotoxic substances with the following hazard statements (H):

A) Substances which cause adverse effects on sexual function and fertility:
- H360F: 1B: May damage fertility
- H360FD: May damage fertility. May damage the unborn child.
- H360Fd: May damage fertility. Suspected of damaging the unborn child.
- H361f: Suspected of damaging fertility.
- H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.

B) Substances which cause adverse effects on development of the offspring:
- H360D: May damage the unborn child.
- H360FD: May damage fertility. May damage the unborn child.
- H360Df: May damage the unborn child. Suspected of damaging fertility.
- H361d: Suspected of damaging the unborn child.
- H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.

C) Substances which cause adverse effects on or via lactation:
- H362 May cause harm to breast-fed children.

Endocrine disrupting

An endocrine disruptor or hormonal disruptor is a chemical that can interfere with animal and human endocrine (or hormone) system causing several adverse effects on exposed individuals and/or their offspring. Adverse effects include cancer, behavior alterations or reproductive disorders among others. The effects depend of the affected hormonal system (oestrogenic, thyroidal, etc.) and the moment of exposure (fetal development, childhood, puberty, etc.). Effects vary also depending on gender. Effects

<table>
<thead>
<tr>
<th>Property</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>on children of exposed individuals have particular significance.</td>
</tr>
<tr>
<td></td>
<td>Possible effects of endocrine disruptors on human health include:</td>
</tr>
<tr>
<td></td>
<td>• On exposed female individuals: breast cancer, death of embryos and</td>
</tr>
<tr>
<td></td>
<td>unborn children, inherited anomalies and malformations, endometriosis,</td>
</tr>
<tr>
<td></td>
<td>etc.</td>
</tr>
<tr>
<td></td>
<td>• On exposed male individuals: testicular cancer, reduction of sperm</td>
</tr>
<tr>
<td></td>
<td>count and sperm quality, reduction of testosterone levels, modified</td>
</tr>
<tr>
<td></td>
<td>concentrations of thyroidal hormones, etc.</td>
</tr>
<tr>
<td></td>
<td>• On offspring of exposed individuals: early puberty, higher cancer</td>
</tr>
<tr>
<td></td>
<td>rates, deformation of reproductive organs, problems in the</td>
</tr>
<tr>
<td></td>
<td>development of the central nervous system, low birth weight, diabetes,</td>
</tr>
<tr>
<td></td>
<td>obesity, hyperactivity, learning disabilities, severe attention</td>
</tr>
<tr>
<td></td>
<td>deficit disorder, cognitive and brain development problems. Further</td>
</tr>
<tr>
<td></td>
<td>background information can be found on 20.</td>
</tr>
</tbody>
</table>

| Allergenic or sensitizing     | Hypersensitive reactions like dermatitis, asthma or hay fever by the     |
|                               | body to a foreign substance, which in similar amounts and circumstances  |
|                               | are harmless within the bodies of other people. Allergies are          |
|                               | over-reactions of the immune system.                                   |
|                               | A respiratory sensitizer is a substance with the potential to act,      |
|                               | through whatever mechanism, to create a situation of airway            |
|                               |   hypersensitivity. A skin sensitizer is "a substance that will induce |
|                               |   an allergic response following skin contact".                        |
|                               | Sensitization implies two phases: the first exposure generates a        |
|                               |   sensitisation process as a response to contact with allergens. The   |
|                               |   second phase triggers the allergic response when the previously      |
|                               |   sensitised individual is exposed to the allergen again.              |
|                               | The initial human response to a sensitising compound might be low or   |
|                               |   none. However, once the individual has been sensitised, subsequent   |
|                               |   exposures may cause intense responses even to very low concentrations.|
|                               | Sensitisation occurs in most cases as part of an immunological         |
|                               |   mechanism. Allergic reactions can be extremely severe. The most     |
|                               |   common reactions include rhinitis, asthma, alveolitis, bronchitis,    |
|                               |   contact eczema, contact rash and blepharoconjunctivitis.             |
|                               | Workers that experience sensitisation to a particular substance may     |
|                               |   also have crossed reactivity to other substances with similar chemical|
|                               |   structure. Chemicals that are not sensitizers but are irritants may   |
|                               |   similarly cause or aggravate allergic reactions in sensitised        |
|                               |   individuals. Reduction of exposure to sensitizers and substances with |
|                               |   similar chemical structures can reduce the rate of allergic reactions |

<table>
<thead>
<tr>
<th>Property</th>
<th>Effects</th>
</tr>
</thead>
</table>
|          | sensitised persons. However, for some sensitised patients the only way to prevent immune responses to sensitizers and similar agents is to completely avoid workplace and daily life exposure.  
|          | Neurotoxic | Neurotoxics are substances capable of causing adverse effects in the central and peripheral nervous system, and in sense organs. These effects include narcosis, nausea, dizziness, vertigo, irritability, euphoria, movement coordination problems, impaired memory and behaviour, and alterations of the peripheral nerves. Exposure to some neurotoxicants has also been associated with neurodegenerative diseases like Alzheimer’s disease. Some neurotoxic effects may be reversible (e.g. narcosis, nausea, dizziness, vertigo) and others may be irreversible (e.g. neurodegenerative diseases).  
|          | EU Regulation 1272/2008 (CLP) identify neurotoxic substances with the following hazard statements (H): |
|          | • H336: May cause drowsiness and dizziness. |
|          | • H330 or H331: Toxic by inhalation |
|          | • H311: Toxic in contact with skin |
|          | • H301: Toxic if swallowed |
|          | • H330: Very toxic by inhalation |
|          | • H310: Very toxic in contact with skin |
|          | • H300: Very toxic if swallowed |
|          | The only hazard statement (H) specifically associated with neurotoxic effects is H336, the remaining statements are associated with both neurotoxicant and toxic substances. |
Annex II

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
1.2. Relevant identified uses of the substance or mixture and uses advised against
1.3. Details of the supplier of the safety data sheet
1.4. Emergency telephone number

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
2.2. Label elements
2.3. Other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances
3.2. Mixtures

SECTION 4: First aid measures

4.1. Description of first aid measures
4.2. Most important symptoms and effects, both acute and delayed
4.3. Indication of any immediate medical attention and special treatment needed

SECTION 5: Firefighting measures

5.1. Extinguishing media
5.2. Special hazards arising from the substance or mixture
5.3. Advice for firefighters

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
6.2. Environmental precautions
6.3. Methods and material for containment and cleaning up
6.4. Reference to other sections

SECTION 7: Handling and storage

7.1. Precautions for safe handling
7.2. Conditions for safe storage, including any incompatibilities
7.3. Specific end use(s)

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
8.2. Exposure controls
SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity
10.2. Chemical stability
10.3. Possibility of hazardous reactions
10.4. Conditions to avoid
10.5. Incompatible materials
10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects

SECTION 12: Ecological information

12.1. Toxicity
12.2. Persistence and degradability
12.3. Bioaccumulative potential
12.4. Mobility in soil
12.5. Results of PBT and vPvB assessment
12.6. Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

SECTION 14: Transport information

14.1. UN number
14.2. UN proper shipping name
14.3. Transport hazard class(es)
14.4. Packing group
14.5. Environmental hazards
14.6. Special precautions for user
14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
15.2. Chemical safety assessment

SECTION 16: Other information