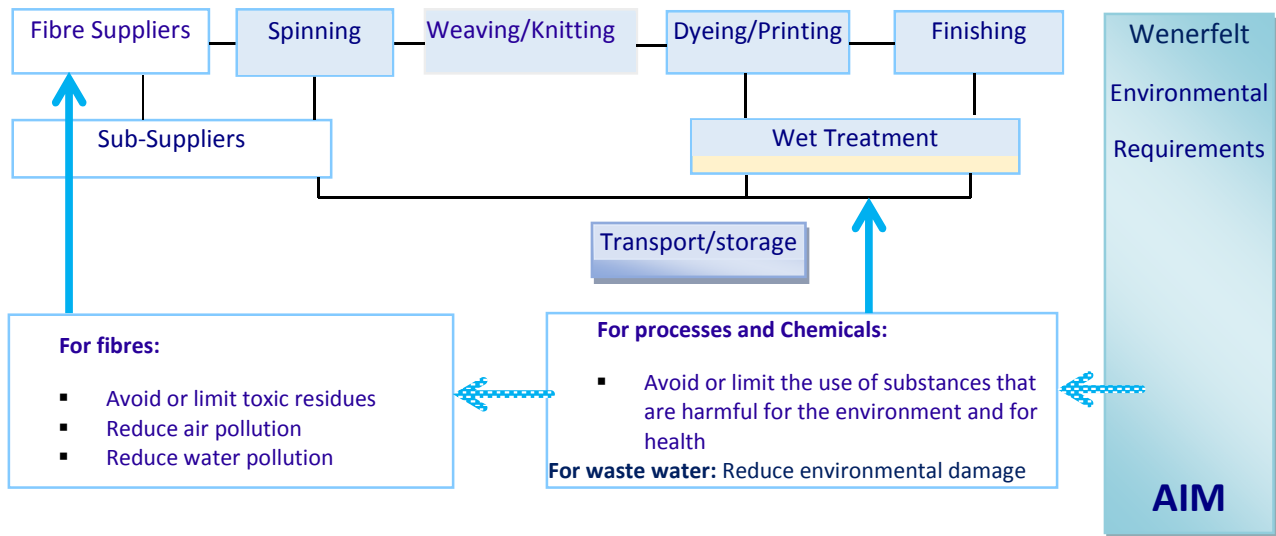


Environmental Requirements



The environmental requirements described below apply to suppliers involved in all stages of production. Our life cycle approach means that our requirements cover textile fibres, processes and chemicals as well as waste water treatment.

The simple supply chain flow chart below shows the aim of our requirements and the LC approach for production



Legal compliance

The business must meet all relevant International, National and Local environmental requirements concerning environmental aspects and should hold the required operational permits, licences and documents showing compliance regarding:

1. Fresh water supply
2. Waste water discharge
3. Emissions
4. Waste disposal
5. Storage, transport and disposal of hazardous chemicals and non-hazardous waste
6. Banned chemicals

Certifications

All products must be as a minimum, Oekotex 100 certified.

Businesses are encouraged to apply for either the EU Ecolabel or the Nordic Swan in order to provide a more environmental, better for health product. For more information about these Ecolabels please visit

<http://www.ecolabel.dk/da/> and <http://ec.europa.eu/environment/ecolabel/>

Resource efficiency

The supplier shall strive for a reduction/optimisation of resources to ensure continuous improvement of the environmental performance.

Fresh Water

Fresh water shall be used in a responsible way with environmental aspects taken into account. Rain water use should be encouraged and practiced where possible.

Waste water discharges from wet processing

Non-used residual amounts of chemical components shall not be discharged to waste water.

The amount of residual liquors from dyeing, finishing, printing and coating shall be minimised.
As a minimum, the supplier shall comply with COD and pH limit values set by the National/Local authorities.

Wernerfelt encourages the supplier to strive for a COD content of less than 20g/kg expressed as an annual average, and a pH level of between 6-9.

Power generation

The supplier should strive to use environmentally friendly fuels and give preference to renewable energy sources.

Waste

Compliance with National/Local regulations pertaining to solid waste storage and transport of solid waste shall be ensured.

Re-use and recycling as well as the use of re-useable/returnable containers should be encouraged and practiced where possible and packing material shall be reduced as much as possible.

Storage and transport of textiles

Raw materials and Textiles shall be stored and transported in an appropriate manner to avoid any cross-contamination. Biocidal and Biostatic products shall not be used during storage and transportation of products.

Emissions to Air

As a minimum the business must adhere to the National/Local laws and regulations regarding emissions to air.

Pesticides and substances used in natural seed fibre

The supplier shall as a minimum adhere to the Local/National laws and regulations and provide documentation for doing so.

Wernerfelt's suppliers/sub-suppliers are encouraged to use the list and values below as a guide for pesticide use.

Natural cellulosic seed fibres shall not contain more than 0,05 ppm of each of the following substances: Aldrin, captafol, chlordane, DDT, dieldrin, endrin, heptachlor, hexachlorobenzene, hexachlorocyclohexane (total isomers), 2,4,5-T, chlordimeform, chlorobenzilate, dinoseb and its salts, monocrotophos, pentachlorophenol, toxaphene, methamidophos, methylparathion, parathion, phosphamidon

For man-made cellulose fibres: the content of AOX shall not exceed 250 ppm.

Auxiliaries, finishing agents, Compounds and formaldehyde

Seizing preparations, Spinning solution additives, spinning additives and preparation agents for primary spinning shall be sufficiently biodegradable according to local/national laws and regulations.

Heavy metal salts and formaldehyde shall not be used for stripping or dipigmentation.

Compounds of cerium shall not be used in weighting

Chemicals and chemical preparations

All chemicals and substances listed in the REACH SVHC shall not be used. [See below](#)

Detergents, fabric softeners and complexing agents

Fabric softeners, complexing agents and detergents shall be sufficiently biodegradable according to Local/National laws and regulations. This is usually more than 60%

Wernerfelt recommends a biodegradability level of 95%

Chlorine agents shall be excluded for bleaching yarns, fabrics and end products (excluding man made cellulose fibres)

Dyeing

Impurities in dyes: Colour matter with fibre affinity (soluble or insoluble)

The levels of ionic impurities in the dyes used shall not exceed the following: Ag 100 ppm; As 50 ppm; Ba 100 ppm; Cd 20 ppm; Co 500 ppm; Cr 100 ppm; Cu 250 ppm; Fe 2500 ppm; Hg 4 ppm; Mn 1000 ppm; Ni 200 ppm; Pb 100 ppm; Se 20 ppm; Sb 50 ppm; Sn 250 ppm; Zn 1500 ppm.

Any metal that is included as an integral part of the dye molecule (e.g. metal complex dyes, certain reactive dyes, etc.) shall not be considered when assessing compliance with these values, which only relate to impurities.

Impurities in pigments: Insoluble colour matter without fibre affinity

The levels of ionic impurities for pigments used shall not exceed the following: As 50 ppm; Ba 100 ppm, Cd 50 ppm; Cr 100 ppm; Hg 25 ppm; Pb 100 ppm; Se 100 ppm Sb 250 ppm; Zn 1000 ppm.

Chrome mordant dyeing

Chrome mordant dyeing is not allowed.

Metal complex dyes

If metal complex dyes based on copper, chromium or nickel are used:

In case of cellulose dyeing, where metal complex dyes are part of the dye recipe, less than 20 % of each of those metal complex dyes applied (input to the process) shall be discharged to waste water treatment (whether on-site or off-site).

In case of all other dyeing processes, where metal complex dyes are part of the dye recipe, less than 7 % of each of those metal complex dyes applied (input to the process) shall be discharged to waste water treatment (whether on-site or off-site).

The emissions to water after treatment shall not exceed: Cu 75 mg/kg (fibre, yarn or fabric); Cr 50 mg/kg; Ni 75 mg/kg.

The following Dyes that are carcinogenic, mutagenic or toxic to reproduction shall not be used.

| | |
|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| C.I. Basic Red 9, C.I. Disperse Blue 1, C.I. Acid Red 26, C.I. Basic Violet 14, C.I. Disperse Orange 11, | C. I. Direct Black 38, C. I. Direct Blue 6, C. I. Direct Red 28, C. I. Disperse Yellow 3. |
|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|

No use is allowed of dye substances or of dye preparations containing more than 0,1 % by weight of substances that are assigned or may be assigned at the time of application any of the **Risk phrases (or combinations thereof) listed below:**

Azo dyes shall not be used that may cleave to any one of the following aromatic amines:

| | |
|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4-aminodiphenyl (92-67-1) Benzidine (92-87-5) 4-chloro-o-toluidine (95-69-2) 2-naphtylamine (91-59-8) | 3,3'-dimethyl-4,4'-diaminodiphenylmethane (838-88-0) p-cresidine (120-71-8) 4,4'-oxydianiline (101-80-4) 4,4'-thiodianiline (139-65-1) |
|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | |
|------------------------------------------|-------------------------------------|
| o-amino-azotoluene (97-56-3) | o-toluidine (95-53-4) |
| 2-amino-4-nitrotoluene (99-55-8) | 2,4-diaminotoluene (95-80-7) |
| p-chloroaniline (106-47-8) | 2,4,5-trimethylaniline (137-17-7) |
| 2,4-diaminoanisole (615-05-4) | 4-aminoazobenzene (60-09-3) |
| 4,4'-diaminodiphenylmethane (101-77-9) | o-anisidine (90-04-0) |
| 3,3'-dichlorobenzidine (91-94-1) | 2,4-Xylidine |
| 3,3'-dimethoxybenzidine (119-90-4) | 2,6-Xylidine |
| 3,3'-dimethylbenzidine (119-93-7) | |

Potentially sensitising dyes

The following dyes shall not be used:

| | |
|--------------------------------------|-----------------------------------------------------------|
| C.I. Disperse Blue 3 C.I. 61 505 | C.I. Disperse Orange 37 |
| C.I. Disperse Blue 7 C.I. 62 500 | C.I. Disperse Orange 76 (previously designated Orange 37) |
| C.I. Disperse Blue 26 C.I. 63 305 | C.I. Disperse Red 1 C.I. 11 110 |
| C.I. Disperse Blue 35 | C.I. Disperse Red 11 C.I. 62 015 |
| C.I. Disperse Blue 102 | C.I. Disperse Red 17 C.I. 11 210 |
| C.I. Disperse Blue 106 | C.I. Disperse Yellow 1 C.I. 10 345 |
| C.I. Disperse Blue 124 | C.I. Disperse Yellow 9 C.I. 10 375 |
| C.I. Disperse Brown 1 | C.I. Disperse Yellow 39 |
| C.I. Disperse Orange 1 C.I. 11 080 | C.I. Disperse Yellow 49 |
| C.I. Disperse Orange 3 C.I. 11 005 | |

Halogenated carriers for polyester

Halogenated carriers shall not be used.

Printing

Printing pastes used shall not contain more than 5 % volatile organic compounds such as white spirit (VOCs: any organic compound having at 293,15 K a vapour pressure of 0,01 kPa or more, or having a corresponding volatility under the particular conditions of use). **Plastisol-based printing** is not allowed.

Formaldehyde

The amount of free and partly hydrolysable formaldehyde in the final fabric shall adhere to the Oekotex class II standard.

Fabric Finishes

No use is allowed of finishing substances or of finishing preparations containing more than 0,1 % by weight of substances that are assigned or may be assigned at the time of application any of the following **R-phrases** (or combinations thereof) **listed below**:

No substances or preparations may be added to the raw materials that are assigned, or may be assigned at the time of application, with and of the following hazard statements (or combinations thereof): H351, H350, H340, H350i, H400, H410, H411, H412, H413, H360F, H360D, H361f, H361d, H360FD, H361fd, H360Fd, H360Df, H341.

Wernerfelt's suppliers are encouraged to go beyond National/Local laws and regulations that are the minimum requirement and use the standards described in the European Ecolabel criteria as a guide to proper and responsible management of the environmental aspects associated with textile products throughout the life cycle of the product.

Wernerfelt informs their suppliers to consult the EUs candidate list of substances of very high concern (SVHC) regularly (link below) as more and more chemicals are added to the list. For an updated SVHC list please follow the below link (on 1. August 2013 there are 144 SVHCs)

<http://echa.europa.eu/web/guest/candidate-list-table>

Suppliers are also encouraged to keep and have available documentation such as records, reports, tests that show environmental verification results, data and conformity to laws and regulations.

They are required to keep and upgrade a complete list of all chemicals and substances used with name of supplier and associated material safety data sheets (MSDS) for each chemical.

Risk Phrases explanation:

| | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| R40 Limited evidence of a carcinogenic effect. R45 May cause cancer. R46 May cause heritable genetic damage. R49 May cause cancer by inhalation. R50 Very toxic to aquatic organisms. R51 Toxic to aquatic organisms. R52 Harmful to aquatic organisms. | R53 May cause long-term adverse effect in the aquatic environment. R60 May impair fertility. R61 May cause harm to unborn child. R62 Possible risk of impaired fertility. R63 Possible risk of harm to the unborn child. R68 Possible risk of irreversible effects. |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|