



GLOBAL ORGANIC TEXTILE STANDARD
ECOLOGY & SOCIAL RESPONSIBILITY

WHY GOTS?

GOTS CERTIFICATION HELPS ENSURE COMPLIANCE DETOX/ZDHC

The Global Organic Textile Standard (GOTS) is recognised as the world's leading processing standard for textiles (clothing, home textiles, personal care products and food contact textiles) made from certified organically produced raw materials. It includes strict environmental and social criteria for operations along the entire textile supply chain. GOTS is recognized in all markets around the globe and the numbers are growing; in 2019 more than 7.700 facilities were certified to GOTS.

→ What is GOTS Zero Discharge of Hazardous Chemicals / Roadmap to Zero (2011 - ongoing)

Greenpeace's Detox campaignⁱ challenges clothing brands to eliminate the use and discharge of hazardous chemicals by 2020. By the end of 2015, 18 companies had joined the resulting independent Zero Discharge of Hazardous Chemicals (ZDHC) working group, and participants follow the [Joint Roadmap towards Zero Discharge of Hazardous Chemicals](#). The Roadmap includes a Manufacturing Restricted Substance List (MRSL) which calls for the elimination of the use and discharge of 11 groups of chemicals (known to be persistent, hormone-disrupting and having various other ill-effects) into waters during manufacturing of apparel and footwear. These chemicals groups include

1. alkylphenols
2. phthalates
3. brominated and chlorinated flame retardants
4. azo dyes
5. organotin compounds
6. perfluorinated chemicals
7. chlorobenzenes
8. chlorinated solvents
9. chlorophenols
10. short chain chlorinated paraffins, and
11. heavy metals - cadmium, lead, mercury, and chromium (VI).

How does GOTS help? GOTS prohibits use not only of the 11 Greenpeace-targeted chemical families but far more, given its stringent environmental and human toxicity requirements. It also provides for a "Positive List" of the trade names of GOTS approved inputs (dyes, pigments, inks, auxiliaries etc.). All chemical inputs (dyes and auxiliaries) used in the processing chain of GOTS certified textiles are subject to approval by a GOTS Approved Certifier prior to its usage. GOTS has been following the system of MRSL for chemical inputs since inception.

Furthermore, the textile processing facilities are inspected by accredited third party certifying bodies for social and environment compliance and the end products are required to be tested as per Risk Assessment done by the certifying bodies.

An annual on-site inspection of participating textile operations by an independent and accredited Certifier verifies/ensures that inputs used are approved.

Detailed: GOTS Already Prohibits the "11 Hazardous Chemicals that Should Be Eliminated" Targeted in Greenpeace's "Detox" Campaign! Greenpeace's Detox campaign has targeted global apparel manufacturers for their use of 11 hazardous chemical and heavy metal categories including alkylphenols, phthalates, brominated and chlorinated flame retardants, azo dyes, organotin compounds, perfluorinated chemicals, chlorobenzenes, chlorinated solvents, chlorophenols, short-chain chlorinated paraffins, and heavy metals including cadmium, lead, mercury and chromium. These compounds are known to be toxic, persistent, bio-accumulative, carcinogenic, mutagenic, reprotoxic, or hormone disruptors, and their use poses risks for the environment and human health. The

substances / substance groups highlighted in the campaign have always been prohibited for use in the processing/manufacturing of textile products certified to the Global Organic Textile Standard (GOTS) through the strict general requirements related to hazards and toxicity (GOTS chapter 2.3.2). In addition, GOTS chapter 2.3.1, “Prohibited and Restricted Inputs”, explicitly lists those hazardous chemical inputs that are potentially used in conventional textile processing but that are banned or restricted for environmental and/or toxicological reasons in all processing stages of GOTS Goods. In GOTS Version 5.0, the Greenpeace campaign’s 11 input groups are all explicitly listed as prohibited.

Quite often the ban on the substance group is even more extensive in GOTS:

Detox chemical group	Related wording for ban of the chemical group (in GOTS chapter 2.3.1)
Alkylphenols	Prohibited are all Alkylphenols (APs) and Alkylphenol ethoxylates (APEOs).
Phthalates	Prohibited plasticizers are: Polycyclic aromatic hydrocarbons (PAH), Phthalates, Bisphenol A and all other plasticizers with endocrine disrupting potential
Brominated and chlorinated flame retardants (BFRs, CFRs)	-> equal wording
Azo dyes	Inputs (e.g. azo dyes and pigments) releasing carcinogenic arylamine compounds (MAK III, category 1,2,3,4)
Organotin compounds	-> equal wording
Perfluorinated chemicals (PFCs)	Per- and Polyfluorinated compounds
Chlorobenzenes	Chlorinated benzenes
Chlorinated solvents	Aromatic and/or halogenated solvents
Chlorophenols	Chlorophenols (including their salts and esters)
Short chain chlorinated paraffins	Short-chain chlorinated paraffins (SCCPs, C10-13)
Heavy metals: cadmium, lead, mercury and chromium (VI)	All heavy metals, with exceptions only for iron (general exception) and copper (for blue, green and turquoise dyestuffs)

GOTS quality assurance criteria states that:

- All chemical inputs (dyes and auxiliaries) used in the processing chain of GOTS certified textiles are subject to approval by a GOTS Approved Certifier prior to their usage. The basis for their assessment is the Material Safety Data Sheet (MSDS) that must be compiled according to a recognised norm or directive. The Approved Certifiers require further sources of information in the assessment including additional toxicological and environmental data for specific components of the auxiliary agents, test reports, and independent laboratory analysis. This means that GOTS approved chemical inputs have all been screened in detail before their use is permitted by textile processors. Information about the input review process and the Approved Certifiers is on our website.
- The trade names of all approved dyes and auxiliaries are compiled on “Positive Lists” that are available to all entities participating in the GOTS certification programme through their certifier. Inputs not included on the positive list are not allowed to be used.
- As part of the annual on-site inspection that all businesses participating in the GOTS certification programme must undergo, the certifiers verify the use of compliant chemical inputs by examining the textile processors’ input recipes. Related GOTS control measures also include inventory checks of the chemical storage area(s) as well as the review of records and accounts for chemical inputs (invoices, delivery notes) to ensure that the declared and approved chemical inputs have been purchased in sufficient quantity to produce the given amount of GOTS Goods.
- GOTS also requires testing of textile materials, intermediates, and finished products in accordance with a risk assessment or in the case of suspicion that prohibited substances have been used. Since it is not affordable and reasonable to make testing of any prohibited substance part of the usual test protocol, GOTS (chapter 2.4.15) focuses the test protocol on prohibited substances that may well pose a valid risk for presence in allowed GOTS materials, chemical inputs, processes, finishing methods, and storage of GOTS products, and that are known to have a harmful effect on humans or the environment.
- While any detection of prohibited substances at any level needs to be investigated for potential (intentional) use of the prohibited substance, (avoidable) contamination, or any other violation of GOTS criteria, the following limit values for intermediates and final products related to the Detox chemicals are outlined in GOTS chapter 2.4.15:

GOTS Limit Values and Test Methods Relevant to the Greenpeace Detox Chemicals:

PARAMETER	CRITERIA	TEST METHOD
Alkylphenol (ethoxylates) NP, OP, NPEO, OPEO sum parameter	< 20 mg/kg	For NP, OP: Extraction, derivatisation, GC/MS or HPLC/MS For NPEO, OPEO: Extraction in methanol, derivatisation, HPLC/MS (test range for NPEO and OPEO: 3-15 moles)
Arylamines with carcinogenic properties (amine-releasing azo dyes MAK III, category 1,2,3) Aniline (MAK III, category 4)	< 20 mg/kg < 100 mg/kg	EN 14362-1 and -3 (HPLC/GCMS)
Chlorophenols (PCP, TeCP) < 0.05 mg/kg	< 0.01 mg/kg	LFGB 82-02-08 (GC/MS)
o-Phenylphenole	< 1.0 mg/kg	Extraction in solvent, GC/MS
Heavy metals	In eluate: figures in mg/kg refer to the textile	Elution DIN EN ISO 105-E04 ISO 17294-2 (ICP/MS)
Antimony (Sb)	< 0.2 mg/kg	
Arsenic (As)	< 0.2 mg/kg	
Cadmium (Cd)	< 0.1 mg/kg	
Chromium (Cr)	< 1.0 mg/kg	
Cobalt (Co)	< 1.0 mg/kg	
Copper (Cu)	< 25 mg/kg	
Lead (Pb)	< 0.2 mg/kg	
Nickel (Ni)	< 1.0 mg/kg	
Mercury (Hg)	< 0.02 mg/kg	
Selenium (Se)	< 0.2 mg/kg	
Tin (Sn)	< 2.0 mg/kg	
Chromium VI (Cr-VI)	< 0.5 mg/kg	Elution DIN EN ISO 105-E04, ISO 11083



Heavy metals	in digested sample:	EPA 3050 B
Cadmium (Cd)	< 45 mg/kg	(ICP/MS)
Lead (Pb)	< 50 mg/kg	
Organotin compounds, individually TBT, TphT, DBT, DOT	< 0.05 mg/kg	Extraction in solvent, ISO 17353 (GC/MS) or ISO/TS 16179
MBT	< 0.1 mg/kg	
Per- and Polyfluorinated compounds (PFC), individually: PFOA, PFOS FTOH	Absent < 0.001 mg/kg < 0.01 mg/kg	Extraction in solvent, LC/MS Extraction in solvent, GC/MS
Phthalates (DINP, DMEP, DNOP, DEHP, DIDP, BBP, DBP, DIBP), sum parameter	< 100 mg/kg	DIN EN 15777: 2009-12 (GC/MS)
Polycyclic Aromatic Hydrocarbons (PAH): Chrysene, Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo(j)fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Benzo(e)pyrene, Dibenz[a,h]anthracene, Naphthalin, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Indeno[1,2,3-cd]pyrene, Benzo[g,h,i]perylene, sum parameter individually	< 10 mg/kg < 1 mg/kg	ISO 18287 or ZEK 01.2-08 (GC/MS)

ⁱ <https://www.roadmaptozero.com/about/> and <http://www.greenpeace.org/international/en/campaigns/detox/fashion/about/progress-and-hurdles-on-the-road-to-Detox/>