TCO DEVELOPMENT

GreenScreen™ in brief.

GreenScreen™ for Safer Chemicals (GS) is developed by the non-profit organization Clean Production Action (CPA). The methodology provides a structured approach to evaluating a comprehensive set of human and environmental health and safety data.

The methodology

- distils complex hazard evaluations down to an easily understood hazard table
- places chemicals along a continuum of concern and assigns to a chemical one of four possible benchmarks as described in Table 1:
- can be used to select greener/safer chemicals for use in products and processes to support the health of all users; consumers, workers and the environment.

Benchmark key		
Benchmark 4	Few concerns, i.e. safer chemical	Preferable
Benchmark 3	Slight concern	Improvement possible
Benchmark 2	Moderate concern	Use but search for safer substitutes
Benchmark 1	High concern	Avoid
Unspecified (U)	Insufficient data to assign a benchmark	

Table 1

Q&A: The Pre-draft Non-Halogenated Substance mandate.

1. **Why is TCO Development interested in the GS methodology?**
   TCO Certified aims at guiding manufacturers towards safer alternatives to hazardous chemicals used today. Previously we referred to a number of risk phrases/hazard statements but this approach has its limitations. One of the main concerns with a risk phrase/hazard statement-based criterion is that no risk phrases/hazard statements for a chemical can either mean "no hazard" or "data gap". GS is a method for comparative Chemical Hazard Assessment (CHA) and builds on the USEPA DfE approach and other national and international precedents (REACH, OECD, GHS). We reviewed other assessment tools but chose GS since we consider it has several advantages:
   - Based on a structured decision logic
   - Looks at all constituents
   - Looks at several stages in the life cycle of the chemical, like transformation/breakdown products and also includes the environmental evaluation of those
   - Takes into account new studies/data and assessments are updated every few years, benchmarks only valid for 3 years
   - Considers 18 environmental and human health endpoints

- Helps close data gaps by providing incentives for companies to produce data (chemicals missing important data are downgraded to a lower Benchmark or deemed as "Unspecified")
- We know what we allow and not only what we ban
- It is freely and publicly accessible, transparent and peer reviewed.

2. Why does the proposed mandate only include GS and no additional compliance alternative?

The GS methodology is the closest to TCO Development's ambition for assessing chemicals in an easily comprehensible and overarching way by including the specific advantages given in Question 1. From a gap assessment standpoint, TCO Development did not consider there was another assessment tool that incorporated equal advantages. An alternative option therefore could be less strict and cause judgement conflicts of a substance. Also the GS methodology and Accepted substance list will demand ongoing surveillance by TCO Development, which will involve considerably more resources if there were more compliance options to oversee.

3. How is a substance evaluated in accordance with GS?

A GS evaluation of a substance covers 18 human and environmental health hazard endpoints. Each of the 18 hazards receives a classification of concern ranging from Very High to Very Low. Based on the classifications the substance is then assigned an overall Benchmark score of 4, 3, 2, 1 or U. Benchmark 1 is the lowest score and according to CPA, aligns with the criteria for Substances of Very High Concern (SVHC) in the European Reach Regulation. A substance assigned U (undefined) is due to data gaps, there too much important data is missing.

4. **Which are the 18 environmental and human health endpoints that are considered?**

Environmental fate	Environmental health	Human health group I	Human health group II	Physical Hazards
Persistence (P)	Acute Aquatic Toxicity (AA)	Carcinogenicity (C)	Acute Mammalian Toxicity (AT)	Reactivity (Rx)
Bioaccumulation (B)	Chronic Aquatic Toxicity (CA)	Mutagenicity & Genotoxicty (M)	Systemic Toxicity & Organ Effects (incl. Immunotoxicity (ST)	Flammability (F)
		Reproductive toxicity (R)	Neurotoxicity (N)	
		Development Toxicity (incl. Development Neurotoxicty (D)	Sensitization (SnS)	
		Endocrine Activity (E)	Respiratory Sensitization (SnR)	
			Skin Irritation (IrS)	
			Eye Irritation (IrE)	

Table 2

5. In what form are flame retardants assessed?

Flame retardants may be inorganic or organic (e.g. phosphorous- or nitrogen-based, monomeric or polymeric). If the flame retardant is reactive, it is the hazard properties of the original substance that are of relevance.

6. Why consider only the hazard properties and not risk and exposure?

The risk of a chemical is dependent on the hazard of that chemical and the probability of exposure to humans or environment. The probability is, however small, never zero. In order to take the safest alternative the answer is therefore to minimize the hazard. No hazard means no risk.

7. **Who may conduct GS evaluations?**
   To be accepted by TCO Certified, all assessments and reassessments shall be conducted by licensed profilers.

8. **What is a licenced profiler?**
   Licenced profilers are organizations approved by Clean Production Action, that have demonstrated expertise in toxicology and chemistry and that have the capacity to provide GS assessments on a consulting basis. The licensed profilers are kept up to date on all method revisions, and CPA audits their application of the method to ensure that it is being applied as intended

9. **How can someone become a GS Profiler?**
   See http://www.GreenScreenchemicals.org/professionals/profilers and contact Clean Production Action at www.cleanproduction.org

10. **What is the TCO Certified Accepted Substance List?**
    This is the list of substances approved for use as flame retardants in TCO Certified products. The list is found on the TCO Development web site. The list is dynamic, which allows new substances that have undergone a valid assessment to be added or for approved substances to come under reassessment in light of new scientific findings.

11. **How have the first 10 substances on the proposed Accepted Substances List been assessed?**
    Many of the GS assessments are initially based on the information reported in the "An alternative assessment for the Flame Retardant Decabromodiphenylether (DecaBDE) Final Report" initiated by the US EPA Dfe and ENFIRO. These results have been translated to GS benchmarks by Clean Production Action approved profilers.

12. **How can an outcome of a GS assessment be independently evaluated?**
    The substance draft report by the licenced profiler goes through a validation program, where an independent toxicologist appointed by the CPA reviews and comments on the report and verifies the GS benchmark.

13. **Why does TCO Development propose not having a list of restricted chemicals?**
    It will be difficult for us to keep such a list updated. We rely on the information sent to us by the applicants and chemical manufacturers. They will send verifications of approved chemicals, not those that have not been approved.

14. **Why only include flame retardants?**
    Moving from a risk phrase/hazard statement-based criterion to GS is significant for brands and we have therefore decided to start with flame retardants where there is quite a lot of data already available from projects such as EPA Design for Environment and the EU ENFIRO-project.

15. **Why is it the same plastic weight limit and component exemptions as before?**
    TCO Development concluded that as a first step we would continue with the same exemptions as we judge that the extra work for the brands to comply is large at this moment. But this will be re-evaluated in the next update.

16. **Why has TCO Development chosen benchmark 2 as the minimum level of acceptance?**
    This decision is based on current knowledge on alternative flame retardants. Restricting flame retardants with benchmark score 1 gives industry enough options for safer alternatives. As our list of preferred chemicals is filled we will of course see when there are enough alternatives with benchmark 3 or 4 for us to also progressively limit the use of benchmark 2 chemicals.

17. **What if a chemical is benchmarked as U (unspecified)?**
    GS helps close data gaps by providing incentives for companies to produce data. Therefore, chemicals missing important data are downgraded to lower Benchmarks or deemed as Unspecified. When enough data gaps for a chemical are filled, then this will lead to other benchmark results.

18. **Why is the benchmark only valid a limited amount of time?**
    Substances are assessed at 3-year intervals since mandates are revised and more data and new knowledge on the substance may lead to other results.

19. **How much is charged for a GS assessment?**
    The draft report of the FR/substance by the licenced profiler can cost 800 to 5,000 US dollars, usually about 2000 US dollars depending on copyright issues.
    A validation assessment there an independent toxicologist appointed by the CPA reviews, comments on the report and verifies the GS benchmark costs approximately 2000 US dollars.

20. **How can I view a full GS assessment of a substance?**
    Assessments are available on the IC2 database. Also the possibility to purchase assessments is available from other sources such as Techstreet Store. If a substance is on the Accepted Substance List but no full assessment report is publicly available, then TCO Development may on approval place interested persons in contact with the owner of the report.