



VinylPlus® and
the VinylPlus® Product Label:
Could the industry label be integrated
into independent sustainability
certification schemes?

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Outline

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Overview

Vinyl (PVC) is the most widely used plastic for long-life applications in building & construction (B&C)

- roofing and waterproofing membranes
- coated fabrics (“textile architecture”)
- window profiles
- electrical installation
- flooring
- pipes, etc.

VinylPlus is the European PVC value chain’s voluntary commitment for sustainable development

- publicly available progress reports, based on third party auditing and monitoring since 2001.
- substituted certain additives such as lead compounds (previously used as stabilizers)

VinylPlus is addressing further needs of the sustainability communities, e.g. by zooming in on additives and complementing standard LCA requirements. VinylPlus has been developing an additives sustainability footprint (ASF) and a set of criteria for a product certification scheme called VinylPlus® Product Label.

Sustainability Principles

- **Our Common Future** aka ‘Brundtland Report’ (UN’s World Commission on Environment and Development, 1987): “...development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.
- New and amended definitions have increasingly sought to integrate the concept into operational norms.
- The 17 **Sustainable Development Goals** (SDGs, United Nations, 2016) succeed in re-focusing attention on a linked set of human needs aimed at “Meeting citizens' aspirations for peace, prosperity, and wellbeing, and to preserve our planet”.
- The SDGs have to be understood in a systemic context, addressing all goals as an inherently interconnected set. Such a framework avoids a company, value chain or other institution to fall into the trap of selecting just a few goals in a given sector.

Sustainability Assessment Methodologies

- Most of the established sustainability rating systems for B&C such as LEED, BREEAM, DGNB... essentially focus on entire buildings.
- The Cradle to Cradle methodology (C2C) has its own set of aspirational principles and terminology. Its essential reliance on chemical hazard of substances, embodied in its Banned List of Chemicals, however, does not consider impacts during product use, nor the contribution of chemicals to product functionality.
- A consensus process aiming at developing such a definition and approach began in Sweden in the early 1990s and the result is now widely known as the Framework for Strategic Sustainable Development (FSSD).
- Forecasting and backcasting represent two major approaches to planning and decision making. When planning for long term and novel goals in complex systems, backcasting is a more appropriate approach. Backcasting begins by defining the vision, and then asks: what shall we do today in order to subsequently get there?
 - This was one of the main reasons why the European PVC industry called on the expertise of The Natural Step (TNS).

VinylPlus' Approach to Sustainable Development

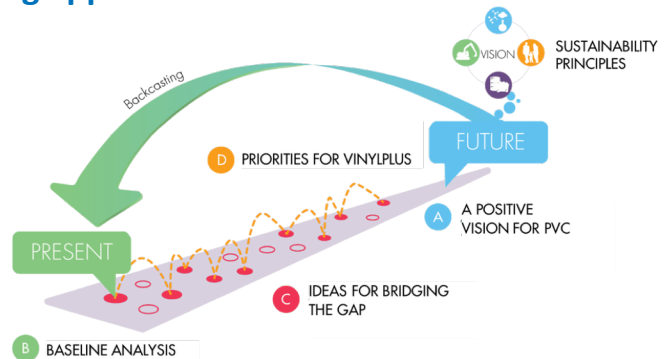
Already in 2000 the entire European PVC industry value chain—resin manufacturers, converters and additive producers—launched the voluntary commitment Vinyl 2010, an ambitious 10-year programme towards sustainability. Despite a financial crisis and a much-enlarged target area due to the addition of EU member states, all goals were met and in some instances even exceeded.

Building on the achievements of Vinyl 2010, the partners decided to launch a new 10-year voluntary commitment, VinylPlus, undersigned in June 2011.

As a 'critical friend' of the industry, TNS became involved in laying out the basic principles. The VinylPlus programme builds on The Natural Step's well-recognized science-based framework System Conditions for a Sustainable Society.

The TNS approach relies on the backcasting approach and is based on four basic rules

<https://thenaturalstep.org/approach/>



Four Sustainability Principles (TNS)

In a sustainable society, nature is not subject to systematically increasing...

- 1. concentrations of substances from the earth's crust (such as fossil CO₂, heavy metals and minerals)**
- 2. concentrations of substances produced by society (such as antibiotics and endocrine disruptors)**
- 3. degradation by physical means (such as deforestation and draining of groundwater tables)**
- 4. And in that society there are no structural obstacles to people's health, influence, competence, impartiality and meaning.**

 The Natural Step

United PVC Value Chain

vinyl^{plus}[®]



Resins

Stabilisers

Plasticisers

Converters

200 companies



The Natural Step **NGO**



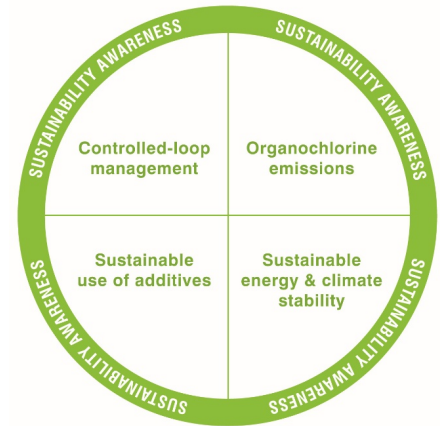
> 170 Recycler partners

recoviny^{plus}[®]

VinylPlus Voluntary Commitment

Derived from TNS's four system conditions and discussions with stakeholders: 35 measurable and concrete targets organised around 5 challenges were defined

- 1. Controlled-loop Management**
(waste management, recycling, use of recycled PVC)
- 2. Organochlorines**
(emissions, transportation)
- 3. Sustainable use of additives**
(responsible 'recipe')
- 4. Energy efficiency**
(reduction of consumption)
- 5. Sustainability awareness**
(transparency, accountability and stakeholder engagement)



Based on
The Natural Step (TNS) System Conditions
for a Sustainable Society

VinylPlus®: Transparency and Accountability

From the earlier Vinyl 2010 programme, VinylPlus took over operational features ensuring transparency and accountability:

An independent Monitoring Committee with representatives of the European Parliament and Commission, academia, trade unions, and consumer organisations oversees its progress.

VinylPlus publishes every year a progress report which is independently audited and verified. <https://vinylplus.eu/progress/annual-progress>

The VinylPlus programme plays a role in the overall progress towards sustainability by contributing to many of the 17 goals identified by the UN Sustainable Development Goals, in particular by minimizing impacts, while contributing to economic growth with suitable products for infrastructure and smarter cities.

It is also worth mentioning that VinylPlus has been a member of the Green Industry Platform since 2013, a global partnership led by the United Nations Industrial Development Organization (UNIDO) and the UN Environment Platform Programme (UNEP).

High Performance AND Sustainability



<https://productlabel.vinylplus.eu/product-inventory/>

The VinylPlus® Product Label

- The VinylPlus® Product Label is a multi-criteria, third-party sustainability certification scheme. As other schemes, it has been created with the intent to shift the market preference towards the supply and demand of products with superior sustainability performance.



<https://productlabel.vinylplus.eu/>

- Voluntary certification schemes can be described and analysed using the tripartite standard regime framework developed by Busch. In this framework, a scheme is characterized in three dimensions by Governance, Standard and Certification.

Busch L., 2011, Standards: Recipes for Reality, MIT Press, Cambridge,

<https://mitpress.mit.edu/books/standards>

Governance driving Legitimacy

Governance tells how the scheme is managed, how the auditors are accredited, how the engagement with stakeholders is organized, and how the scheme's activities and performance are communicated. All these elements drive the scheme's legitimacy.

The VinylPlus Product Label scheme is owned by VinylPlus but is operated and developed together with the Building Research Establishment (BRE) and TNS, both organizations being independent from the vinyl industry. An important part of requirements are taken from the BES 6001 standard owned by BRE.

The scheme has been recently recognized as valid for accreditation in Italy. Recognition at the European level is ongoing by European Accrediation. Audits will be run in a near future by auditors from ISO 17065 certification bodies specifically accredited for the scheme by government bodies.

Criteria revisions and developments of the VinylPlus label are open to all relevant stakeholders through a procedure available on the website of the scheme.

All activities related to the scheme can be consulted at any time and any one on this website. <https://productlabel.vinylplus.eu/>

Standard: Requirements and Criteria

The VinylPlus® Product Label scheme includes 18 requirements.

11 requirements are based on the VinylPlus challenges defined by TNS, e.g. recycling and building controlled loops, using the PVC resin and additives sustainably, committing to energy efficiency and internally and externally communicating to raise sustainability awareness.

The other requirements are taken from BES 6001, the Framework Standard Responsible Sourcing developed by BRE.

Responsible sourcing offers a way to improve the implementation and traceability of sustainability objectives throughout the project supply-chain.

For each of the 18 requirements, a set of specific criteria is defined against which achievement can be scored; there is each time a threshold level of achievement which acts as a barrier to entry.

NOTE: BES 6001 scheme is more comprehensive than chains of custody schemes such as Forest Stewardship Council or managerial systems such as ISO 14001.

Criteria Scheme

18 verifiable and non discriminatory criteria



SECTION	SCORE ▶	1	2	3	4	5	6	13	14
1.1 Integration of the VinylPlus® programme into company life	C				4				
2.1 Responsible Sourcing Policy	C								
2.2 Legal Compliance	C								
2.3 Quality Management System	C		2						
2.4 Supplier Management System	C								
3.1 Material Traceability down the Supply Chain	C		2						
3.2 Environmental Management in the Supply Chain	C			3					
3.3 Health and Safety Management in the Supply Chain	C			3					
4.1 Use of recycled PVC in the product, product group or product system	-						6		
4.2 Waste Management	C						6		
4.3 Product Design for re-use or recycling	-				4				
5.1 PVC resin used in manufacturing the product	C				4				
6.1 Use of additives in the assessed product	C								14
7.1 Greenhouse gas emission reduction/improving energy efficiency	C						6		
7.2 Use of renewable energy resources	-				4				
7.3 Transport impacts	-				4				
7.4 Lifecycle assessment (LCA) and Environmental Product Declarations (EPD)	-					5			
8.1 Demonstrating Commitment and Communication	C				4				

C Compulsory
- Non compulsory
Nb Maximum score



Certification Process

After a self-test, the applicant submits its application online. VinylPlus then does a first conformity check.

The audit is then prepared together with the auditor selected by the applicant. Once all the requested information has been gathered, the auditor undertakes a pre-assessment. Following this pre-assessment, an on-site audit is performed by the auditor.

A detailed performance report is prepared by the auditor. After all evidence has been gathered, the performance report is verified by BRE and additional inputs from the applicant may be requested. Once verified, the report is transmitted to VinylPlus.

If the audit process is successful, VinylPlus grants a label certificate valid for 2 years. After this period, the certification needs to be renewed following the same process.

As of end of September 2019, 43 PVC profile systems manufactured in 13 manufacturing sites in 7 European countries have been certified.

The scheme is now being open to all PVC building and constructions products as defined in the EU Construction Products Regulation.

Additives Sustainability Footprint – WHY?

- Many schemes, including the REACH Regulation, concentrate on intrinsic chemical properties and particularly potential hazard.
- Risk assessment integrates hazard with potential exposure.
- Both approaches—hazard and risk—fail to account for wider sustainability issues related to sourcing, production and application of chemicals, their interaction with products within which they may be used and their fate at or beyond end-of-life.
- Life Cycle Assessment (LCA) measures some of these aspects, using well-established environmental impact categories such as global warming potential, eutrophication, different aspects of ecotoxicity and ozone-forming potential.
- Lack of social considerations in conventional LCA has been acknowledged as a deficiency, and the SETAC/UNEP Social Life Cycle Assessment model is working to include social impacts as a more useful tool in progress towards sustainability.
- The EU's Product Environmental Footprint (PEF) methodology remains unclear when or if it will be applied to any important PVC construction products (e.g. window profiles).

Sustainability Life Cycle Assessment (SLCA)

- The Additive Sustainability Footprint (ASF) tool has been developed by VinylPlus in order to account for the wider context of sustainability as articulated by the TNS System Conditions. It's designed to include the functional contributions of additives, enabling articles to address human needs on a potentially sustainable basis.
- The ASF applies the Sustainability Life Cycle Assessment (SLCA) approach developed by TNS. This life cycle assessment methodology implements the TNS FSSD within the ISO 1404X-compliant LCA methods.
- SLCA addresses strategic pathways towards full sustainability based on the FSSD, rather than focusing on a priori defined challenges. SLCA has been applied in various operational contexts, including for example paints.

ASF: The Ten-Step SLCA Approach

1. Set goal and scope

Create assessment team and agree on project goal and scope

2. Create a shared definition of the sustainable product system

Agree on success criteria for sustainable use of additives across each of the life cycle stages:

- ✓ Additives are sustainably produced using materials that are responsibly sourced
- ✓ Additives support the sustainable management of PVC products (e.g. safe and recyclable)
- ✓ The functional benefits of additives enable PVC products to support sustainable development (e.g. meeting the UN SDGs)

3. Set system boundaries

Establish de minimis additive concentrations and other aspects of the life cycle such as aligning with assumptions in the published EPD and other protocols used by the industry

4. Inventory analysis

Collect information relevant to addressing the social and environmental criteria covered by questions in Step 5

5. Sustainability assessment

Assess sustainability strengths and weaknesses by answering questions checking alignment with the TNS System Conditions

ASF: The Ten-Step SLCA Approach, cont'd

6. Identify key impact areas

Based on answers from Step 5., identify sustainability hotspots

7. Brainstorm possible solutions

Consider options to address the sustainability hotspots highlighted in Step 6

8. Prioritise solutions

Prioritise optimal solutions to address the sustainability hotspots

9. Create an innovation roadmap

Take innovations through measurable actions

10. Measure and report progress

Draft a summary “Snapshot report” comprising a description that an ASF has been performed, an explanation of the process of the study, a link to further contact and other information, verification by those behind the study, and the insights and recommendations that arose from the process.

Conclusion, Outlook and Vision

The unique value chain approach of VinylPlus, its wide range of targets to enhance the sustainability of PVC, and the concrete tools it has developed, such as its

- Product Label and
- Additives Sustainability Footprint

are mentioned by policy makers as a kind of role model. For example, a EU Commission director stated that “VinylPlus can be considered as a frontrunner for the circular economy”. (Cozigou G., 30 April 2015, Circular Economy, DG GROW, European Commission).

This toolbox positions VinylPlus as a valuable partner for stakeholders developing and implementing policies aiming at a more sustainable European industry, especially the construction industry.



www.vinylplus.eu



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[vinylplus_eu](https://twitter.com/vinylplus_eu)