

Sustainability, what it means for the Reagens group

3 Dec. 2022

Earth is a unique, closed, fragile, limited system: we must preserve it as much as possible, allowing in the meantime to satisfy both our needs as well as the ones of the next generations.

TNS ⁽¹⁾ has been assisting VinylPlus in its transformation path towards a fully sustainable system for over 20 years.

Reagens, which has been a member of VinylPlus since its formation, and whose management actively participates in driving it into this direction, has therefore adopted the 4 Principles of Sustainability ⁽²⁾ proposed by TNS, as the guiding star to be always kept in mind in every area of its activities.

These principles cover the 17 EU Sustainability Goals ⁽³⁾ which could be impacted by a plastic's additive manufacturer, making them so useful for our and our son's safe lives.

Reagens, in line with its long-term vision, has been among the first European companies obtaining the VinylPlus Supplier Certification (VSC) ⁽⁴⁾, which is the transposition of the TNS principles into all the steps of the VinylPlus' Additives Sustainability Footprint (ASF) system.

ASF (and consequently, VSC) is the most complete, holistic, science-based methodology to evaluate the sustainability of vinyl additives (but in general, any additives). The emphasis on sustainable use is important, framing additives in terms of risk from raw material supply chains and manufacturing through to implications of use in articles and potential and operational capacity for recycling after article end-of-life. ASF is more complete than other tools such as Life Cycle Assessment, because it considers also the social and economic aspects of sustainable development ⁽⁵⁾. ASF contrasts with the emphasis on potential hazard in many regulatory frameworks (such as EU REACH). In fact, potentially hazardous substances can be safely immobilized in PVC articles and recovered through recycling. Conversely, linear use, high inputs of preservatives during product life cycles, poor disposal techniques such as uncontrolled burning and other factors may mean that significant risks can potentially arise from use of ostensibly lower-hazard substances.

The sustainable use of PVC additives was the explicit focus of TNS Challenge 4, adapted as VinylPlus[®] Challenge 3 (to 2020) and subsumed into VinylPlus[®] Pathway 2 (to 2030).

It is furthermore worth to be highlighted, how better PVC articles perform in terms of Carbon Footprint ⁽⁶⁾ versus any alternative materials in most of its applications, thanks to:

- the intrinsic lower Carbon content of PVC resin (57% it's salt, only 43% comes from organic sources);
- the longevity of the articles produced with PVC (usually they are granted for many decades);
- the easy possibility to be mechanically recycled after their first life, at least up to 7-8 times (making the effective life of a PVC articles many centuries long).

Reagens is proud to be active part of this process, so useful to make the life of all human beings and of our environment better and safer in the long term.

Therefore, Reagens is committed to:

- (1) progressively extend the Vinyl Supplier Certification (VSC) to all of its production sites;
- (2) join the TfS initiative, for having a full assessment of the Carbon Footprint of its additives.

References and highlights

- (1) **TNS: The Natural Step** is an association founded in Sweden in 1989 by the Swedish scientist Karl-Henrik Robèrt. The Natural Step first developed a "backcasting from principles" approach for a systematic advancement towards sustainability. Following the publication of the Brundtland report in 1987, The Natural Step developed the framework known academically as the Framework for Strategic Sustainable Development - FSSS (Framework for Strategic Sustainable Development - FSSD), based on the system conditions for the survival of the human species on planet earth. The system conditions respect the laws of thermodynamics. The FSSD revolves around a robust, science-based definition of sustainability. "Robust" means that the principles contained in this definition are both necessary and enough to achieve sustainability. They are also applicable to any activity at any scale and they don't overlap (each principle covers its own domain). An international network of scientists have unanimously and publicly concluded that human society is altering life-supporting natural structures and functions in three fundamental ways. Consequently, they were able to define three basic "system conditions" that must be met if we want to maintain the essential environmental services that sustain human society. Further, because human action is the primary cause of the rapid change we see in the natural environment today, they included a fourth system condition that focuses on the social and economic considerations that drive those actions—recognizing that human beings will always prioritize the meeting of their basic needs (just like every other creature on the planet).
- (2) **The four TNS System Conditions**
In a sustainable society, nature is not subject to systematically increasing ...
 1. ... concentrations of substances from the earth's crust (such as fossil CO2 and heavy metals),
 2. ... concentrations of substances produced by society,
 3. ... degradation by physical means (such as deforestation and draining of groundwater tables),
...and in that society ...
 4. ... there are no structural obstacles to people's health, influence, competence, impartiality and meaning.
- (3) **The 17 EU Sustainability Goals: The goals of sustainable development according to the 2030 Agenda**



The goals of sustainable development according to the 2030 Agenda

1. Defeat Poverty - End all forms of poverty in the world
2. Defeat hunger - End hunger, achieve food security, improve nutrition and promote sustainable agriculture
3. Health and Wellbeing - Ensure health and wellbeing for all and for all ages
4. Quality education - Provide quality, equitable and inclusive education, and learning opportunities for all
5. Gender equality - Achieve gender equality and empower all women and girls
6. Clean water and sanitation - Ensuring the availability and sustainable management of water and sanitation facilities for all
7. Clean and accessible energy - Ensure access to affordable, reliable, sustainable and modern energy systems for all
8. Decent work and economic growth - Encourage lasting, inclusive and sustainable economic growth, full and productive employment and decent work for all
9. Businesses, innovation and infrastructure - Building a resilient infrastructure and promoting innovation and fair, responsible and sustainable industrialization
10. Reduce inequalities - Reduce inequality within and between nations
11. Sustainable cities and communities - Making cities and human settlements inclusive, safe, long-lasting and sustainable
12. Responsible consumption and production - Ensure sustainable production and consumption patterns
13. Fight against climate change - Promote actions, at all levels, to combat climate change
14. Life under water - Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15. Life on Earth - Protect, restore and promote sustainable use of the earth's ecosystem
16. Peace, justice and strong institutions - Promote peaceful and inclusive societies for sustainable development
17. Partnership for the Goals - Strengthen the means of implementation and renew the global partnership for sustainable development

(4) VSC Reagens Certification

VinylPlus® Supplier Certificate FOR PVC ADDITIVES SUPPLIERS



**VinylPlus®
Supplier
Certificates**



Has complied with the requirements of the VinylPlus® Supplier Certificate for PVC additives suppliers. The VinylPlus® Supplier Certificate is a recognition for outstanding performance around sustainable development for companies in the PVC building and construction industry.

Reagens Group is a proud partner of VinylPlus®, the European PVC industry's commitment to sustainable development.

Reagens Group is authorised to use the VinylPlus® Supplier Certificate for PVC additives suppliers in the sales territory of Europe (EU-27, plus the UK, Norway and Switzerland) for the following product(s) and location(s).

Product(s) families:

Stabilox, Stabiol, Realube and Loxaclean
(see Annex for the full list of certified additives)

Location(s):

Loxstedt, Germany,
Reagens Deutschland

Signed for and on behalf of VinylPlus®

Brigitte Dero
Managing Director

Certificate N°: 01

Issue N°: 01

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(5) *ASF and alternative methodologies to assess additives sustainability*

	Full dimensions of sustainable development	Transparently science-based	Based on full article life cycle risk (rather than potential hazard alone)	Recognises positive contributions to meeting human needs	Open access	Free to use (albeit with guidance and external auditing)	Applicable across products/materials	Statutory	Peer reviewed in science literature
Additive Sustainability Footprint (ASF)	YES	YES	YES	YES	YES	YES	YES	NO	YES
Life Cycle Assessment (LCA)	NO	YES	Partially	NO	Partially	Partially	YES	NO	YES
Environmental Product Declaration (EPD)	NO	YES	Partially	NO	Partially	YES	YES	NO	YES
Product Environmental Footprint (PEF)	NO	YES	Partially	NO	Partially	YES	YES	NO	YES
EU REACH	NO	YES	NO	NO	YES	YES	YES	YES	YES
SciveraLENS®	NO	YES	Partially	NO	NO	NO	YES	NO	NO
Greensuite®	NO	YES	Partially	NO	NO	NO	YES	NO	YES
GreenScreen List Translator™	NO	YES	NO	NO	NO	NO	YES	NO	Partially
GreenWERKS	NO	YES	NO	NO	NO	NO	YES	NO	NO
Green Chemistry and Commerce Council (GC3) Retailer Database	NO	YES	NO	NO	Partially	Partially	YES	NO	NO
OECD Substitution and Alternatives Assessment Toolbox (SAAT)	NO	YES	NO	NO	Partially	Partially	YES	NO	NO
ECHA Plastic Additives Initiative	NO	YES	Partially	NO	YES	YES	Partially	NO	NO
Cradle to Cradle	YES	YES	YES	NO	NO	NO	YES	NO	YES
Ecovadis	YES	YES	NO	NO	NO	NO	YES	NO	NO
Carbon Handprint	NO	YES	YES	NO	YES	YES	YES	NO	YES
Material flow cost accounting (MFCA)	NO	YES	Partially	NO	NO	No	Partially	NO	YES
GRI 301: Materials	NO	YES	NO	NO	YES	YES	YES	NO	NO

- (6) **Carbon Footprint:** Reagens has joined Together for Sustainability (TFS) <https://www.tfs-initiative.com/>, which is a member-driven initiative, raising CSR standards throughout the chemical industry. TFS members are chemical companies committed to making sustainability improvements within their own – and their suppliers’ – operations. Together we are building the global standard for environmental, social and governance performance of chemical supply chains.