2020

A.1 Potential costumers' and stakeholder in-depth qualitative survey

ALINA LIFE FORMULATIONS IN OPEN-SOURCE PLATFORM

LIFE17 ENV/LV/000318

State Regional Development Agency Republic of Latvia

LIFE ALFIO

Background information

In-depth qualitative interviews were planned with at least 15 international paint and coating industry key players/ stakeholders, targeting management level.

To obtain useful and reliable qualitative date, it should be taken in account ongoing activities targeted at sustainable substitution of toxic chemicals. ECHA published a strategy (on Aug 2017) to promote the substitution of hazardous chemicals. It sets out that by networking, promoting best practice and examples, and knowing the properties and uses of substances, companies can better integrate substitution as a part of business model. We have to take into account that business models of paint production companies might change during the next decade, affecting implementation of LIFE-ALFIO project. Therefore, we need to know opinion of policy makers, policy implementing bodies, top management of paint production companies, targeting the CEO or CTO levels. Business model changes will be initiated by the management teams of companies. To succeed with LIFE-ALFIO project we need better understanding of paint production company management concerns, plans, ongoing activities, information perception etc. Therefore, we must talk in person with company management teams.

Objectives and Scope of LIFE-ALFIO project. Project objective is to reduce the impact of toxic chemicals on the environment and human health by reducing toxic biocides and VOCs in paint and coating formulations with a safe, sustainable and novel organoclay-based material:

- 16 replicable formulations;
- Industrial production prototype 120 t/year;
- On-line platform for transparency and traceability of formulations.

Expected Impacts of LIFE-ALFIO **during the project**:

- 500 industry companies introduce, acknowledgement from 25 industry partners;
- Produced 400 K litre of paint and coatings;
- Reduced use of biocide by 3.47 tons;
- Diminished use of VOC by 16.64 tons;
- On-line platform with 5K visitors;
- 4 new green-jobs created.

Expected Impacts of LIFE-ALFIO **after the project**:

- 25 industry partners producing the new, reduced VOC and biocide formulations;
- Produced 12 M litre of paint and coatings;
- Diminished use of biocide by 100 tons;
- Diminished use of VOC by 480 tons;
- On-line platform with 25K visitors;
- 75 new green-jobs created.

Above indicated outcomes provides necessary context towards aim of the interviews with industry stakeholders. Information obtained from the interviews is organised to support LIFE-ALFIO project requirements and planned activities. Information from the stakeholder interviews should support development of Replicability and Transferability plan, that is interlinked in many aspects with the industry stakeholders.

Criteria and prioritization of the interviewees

1. Stakeholders and NGO's
   Stakeholder and policy makers (like ECHA, DG Environment, DG GROW, Ecolabel, sustainable building boards, sustainability institutes);
2. Paint companies
   Main On-line platform ready-made formulation users. Being future users of the new LIFE-ALFIO formulations they have most impact on the project, as they are the ones who will decide to start new paint and coating production. Differentiate by region/size at the same time focusing on sustainable paint products.
3. Others
   Cluster and industry associations – institutions with already established communication and networking channels;
   Architects – influencing overall demand for environment and human health friendly product consumptions;
   Academic institutions to cooperate in R&T actions.

Goals of the in-depth survey:

- Identify paint and coating industry sustainability trends;
- Identify sustainability related needs, problems among industry stakeholders, primary focusing on manufacturers;
- Stakeholder interest in getting involved within ALFIO project, identify possible partnership touchpoints.

Stakeholder interview – methodology

Interviews methodology is developed around specific questions. Selectively questions where used within interviews of stakeholders, considering experience and knowledge of the stakeholder.

- Market technology trends (new material use, manufacturing principles, etc.)?
- Market legal environment trends (Regional trends, France, Nordics, ECHA, etc.)
- Market demand trends (growing, challenging, declining market segments and products)?
- Paint distribution and sales trends (role of distributors, B2B, online etc.)?
- Green building upcoming trends (circularity, eco-label, low co2 materials etc.)
- Importance to comply with LEAD and BREEM standards, any upcoming requirements from Construction companies that implement sustainable build standards.
- Upcoming challenges for silicate and acrylic paint systems. Which "direction" is the most promising and why?
- In-can and film preservation today and tomorrow, major trends and developments?
- What are the main barriers for paint and coating product eco-certifications?
- Which are the main information sources for biocidal product restrictions and guidelines?
- Role of paint formulators, outsourced service to the third parities?

- Solvent use in paint systems (how big is the importance to avoid)
- Requirements towards choice of binders. (price, timing, quality etc.)?
- Tio2 pigments and possible substitutes for the future?
- Challenges with low VOC systems? (development, tests and requirements)?
- Standards & requirements towards raw material used in paint development (what type of criteria you are following?)
- Considering paint manufacturing process? What stages of manufacturing you have?
- How do you define complex vs. simple paint system, what are the main differences?

Specific questions related towards LIFE-ALFIO On-line platform development:

- What type ready-made paint formulations would create value in your portfolio?
- What are the main opportunities and threats you see in the ALINA LIFE concept, developing ready-made, eco-certified paint formulations?
- Do you see any threats towards specific raw material suppliers, which you cannot change?
- What is the minimal documentation package for ready-made paint formulation for deployment in production?
- How do you define perfect paint formulation? what requirements it should fulfil?

Selected companies for the interviews

Following numbers and interviewees was involves, in total 23 companies and institutions:

1. Stakeholders and NGO's, in total 5 institutions
   After interview Ecolabel Latvian and Central division experts, RISE Institute Sustainability division, EACHA policy expert the decision was made to focus on interviews with paint manufacturing companies to gain the best understanding of market and paint industry itself to succeed of reaching project specific goals and delivering functional suggestions for involved policy makers and stakeholders.
2. Paint manufacturers, in total 11 companies
   The selection of the companies started identifying if the company has implemented sustainability strategy and focusing on healthier and more sustainable/circular product development. After several companies we were advised and we came to conclusion that we must include in interviews also the binder manufacturers. The binder manufacturers are the one who define the paint chemistry and are the base to define sustainability and healthiness of the paint.
3. Others, in total 2 institutions
   To understand and validate Latvian national environmental policy implementation and possible contribution during and after the project NGO's and stakeholder were selected that daily contributes in environment policy and related implications at the same time focusing on circular/sustainable solutions or activities. Architects who are flagman of healthy and sustainable material choice explained challenges and adaptation processes.
4. Binder manufacturers, in total 5 companies
   Binder manufactures are interests to participate as project stakeholders and in On-line platform, also to support platform launch.

Interview outcomes

Industry view point

From a large-scale perspective to paint preservation, we now face four challenges:

- Fewer options of actives and reduced amounts to reach the same classification.
- Tighter regulation on more potent actives reduces the self-protection/cleaning effect of plants.
- Lower VOC content in water-based paints.
- Lower raw material protection.

All four challenges exacerbate each other and must be compensated for by paint producers to avoid losing the trust and reputation they hold with consumers.

Market priorities

- Paint and coating applications for interior are prior vs. exterior product, mostly driven by higher and immediate sustainability standards to introduce biocide and VOC reduction.
- In-can preservation for paint and coating products is clear priority for manufacturers, mainly driven by ECHA restrictions for use of biocides to preserve interior paint and coating products.
- In a long-term perspective, film preservation and reduction of biocides will be “on the table”, knowing that today all attention is spent on in-can preservation and interior paints primary.

In-can biocides and regulation

- Paint and coating products, preserved with MIT will have to be labelled with hazard statement H 317 and exclamation mark pictogram from May 1, 2020.
- The threshold for H317 labelling has been reduced from 1000 ppm to 15 ppm, which is below an effective dosage. That means products preserved with BIT/MIT are expected to be restricted to professional users after active substance approval of MIT under Biocidal Products Regulation (BPR).
- Market known eco-label standards adopt MIT restrictions, where Blue Angel is the leading in terms of biocide reduction requirements. Interior wall paints with the Blue Angel are no longer permitted to use preservatives containing biocidal substances. Blue Angel ecolabel sets the market benchmarks.
- Blue Angel currently valid award criteria are in force until 31 December 2020 in compliance with the moratorium of December 2017. From 1st of January 2021, new standards are in place.

- In wall paints and paint mixing systems according to Paragraph 2, the use of in-can and film preservatives is not permitted.
- The isothiazolinone content in the wall paints and paint mixing systems in their ready-to-use form must not exceed the following individual limits:
  - w BIT ≤ 10 ppm
  - w MIT < 1.5 ppm
  - w CIT < 0.5 ppm
  - w All other isothiazolinones < 2 ppm based on the individual substance
  - w Free formaldehyde < 10 ppm
- It is only permitted to use preservatives in the primary/intermediate products if they do not have any preservative effect in the end product. These wall paints must be labelled with the phrase "may contain traces of preservatives" on the container and the technical data sheet. If the product is advertised as a preservative-free wall paint, all individual substances classified as preservatives including formaldehyde must not exceed a limit of 2 ppp, except for CIT < 0.5 ppm and MIT < 1.5 ppm.

- It is expected, that EU Ecolabel will adapt to the new standards, followed by the Nordic Swan ecolabel. From historical developments, EU Ecolabel and Nordic Swan criteria will be synchronised, no major differences are expected.

Table no. 1, Biocide regulation timeline

In-can biocide available alternatives

Knowing the new regulations, leading market players introduce number of alternatives – described as MIT-free In-can preservatives. Those are still biocidal products without MIT.

- LONZA product range:

  To address the evolving regulatory landscape in Europe, Lonza has a full line of MIT-free preservatives based on novel Pyrithione chemistry. Proxel® BZ Plus Preservative and Proxel® LS Preservative are MIT-free formulations available worldwide which offer long-term, robust protection to preserve formulators' products. As well Proxel Spektra™ Preservative has been specifically designed for Europe.

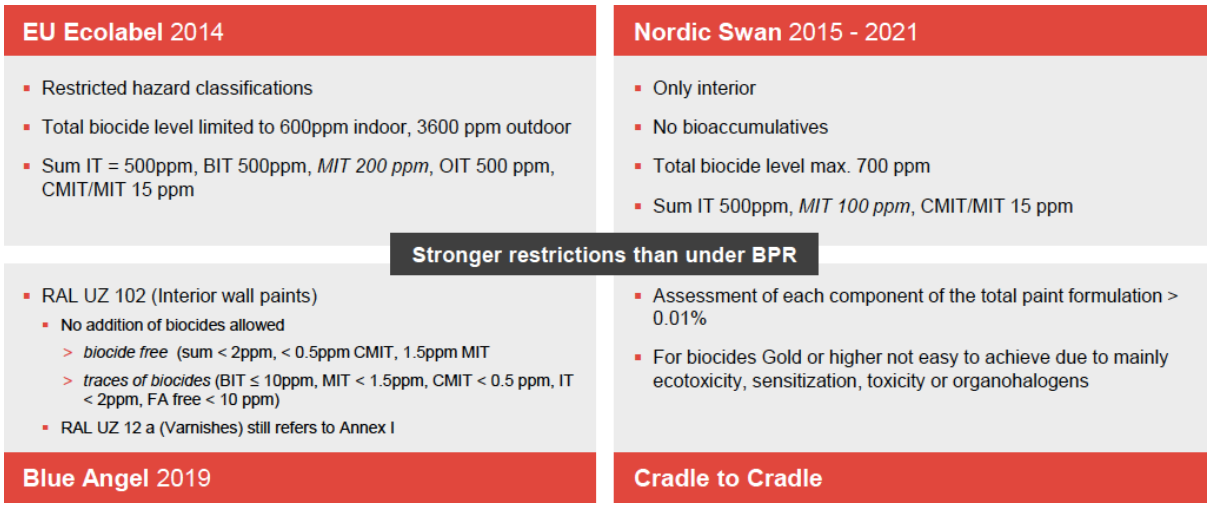
- LANXESS product range:

  Preventol® BIT IT (BIT + CMIT/MIT, Best cost-performance ratio, Fast acting); Preventol® DBC (DBDCB + BIT + CMIT/MIT, Fast acting biocide with long-term efficacy); Biochek® 722 (DBDCB + Bronopol, Completely free from Isothiazolinones, Long-term efficacy); Preventol® BI (BIT + IPBC, Broad spectrum with enhanced bactericidal efficacy, Excelllent for critical products);

- SANITIZED product offering:

  Combinations of Benzisothiazolinone (BIT) + Zinc Pyrithione (ZPT) or BIT and Bronopol provide good solutions to cover the whole spectrum of bacteria, mold, and yeast at very effective dosage levels, far below H317 labeling.

Table no. 2, Summary about standards



Ecolabels and regulation

- Sustainable, human health and environment friendly paint and coating product development is very much dependant on a raw material suppliers, as binders and pigments.
- Additionally, to strict biocidal product regulation, Blue Angel ecolabel as well requires avoidance of substances that are damaging to health and the environment e.g. via
    - Stringent limits on heavy metals
    - Excluding alkylphenol ethoxylates (APEO), as well as perfluorinated and polyfluorinated chemicals (PFC)
    - Strict regulation of softening agents (phthalates and organophosphates)
    - Strict limits on isothiazolinones and formaldehyde
- Raw material suppliers (a specially Binder manufacturers) are the driving source to accelerate sustainable paint and coating product development. They keep the knowledge and recourses to design and innovate, where paint and coating manufacturers are more like users.

VOC for interior products

- Demanding limits on volatile organic compounds (VOC) and semi-volatile organic compounds (SVOC)
- Reduction of VOC for Low-Emission Interior Paints apply for emulsion paints, silicate emulsion paints and primers for wall paints that are intended for use as interior wall and ceiling paints.
- Paint and Coating product manufacturers are very much dependant from a raw materials used. VOC emissions are mainly driven by the use of specific binder (constitute 30+%).
- Binder development is an extensive and complex R&D process, which requires compatibility with other raw materials and suitability for specific paint and coating product application.

Bio Based paint and coating market

Due to increasing governmental regulations to protect the environment, new directives under discussion, potentially banning metals salts such as cobalt, it appears clear that our environmental responsibility is to develop alternative binder technologies. New legislation imposes challenges to the resin producer and coating formulator with major reformulation efforts.

- The development of "green” products currently features across the paints and coatings industry. "The industry is working on solutions to further cut down on the use of hazardous and, in some cases, toxic chemicals”

- Demand for bio-based coatings is on the rise. Volumes of bio-based solvents are following a similar upward trajectory. The most important or largest outlet for bio-based solvents is paints, surface coatings and printing inks, with a 40% share.

- Market Vendors: The Freshaire Choice, EcoProCote, BASF SE, BioShields, Auro Pflanzenchemie AG, Bio Brands LLC, Mythic Paint, BioAmber Inc, Benjamin Moore Co. and Cargill Incorporated

System behind paint market

- Binder companies design and manufacture binders, for different paint product use cases. In a paint manufacturing supply chain, they play the leading role. Binder manufacturers define material and potential paint systems that can be manufactured.

- Smaller paint and coating manufacturers are dependent from distributers, that accumulated limited competence inhouse. They do consult and sell limited range of products for they clients. In some extreme cases they become source of information for the paint and coating manufacturer.

- Raw material suppliers, distributors, formulators and biocide producers are important stakeholders in the market. They keep information flow, and have substantial effect on a new paint product development.

Table no. 3, Strategy of creating stakeholders partnerships in LIFE-ALFIO project.

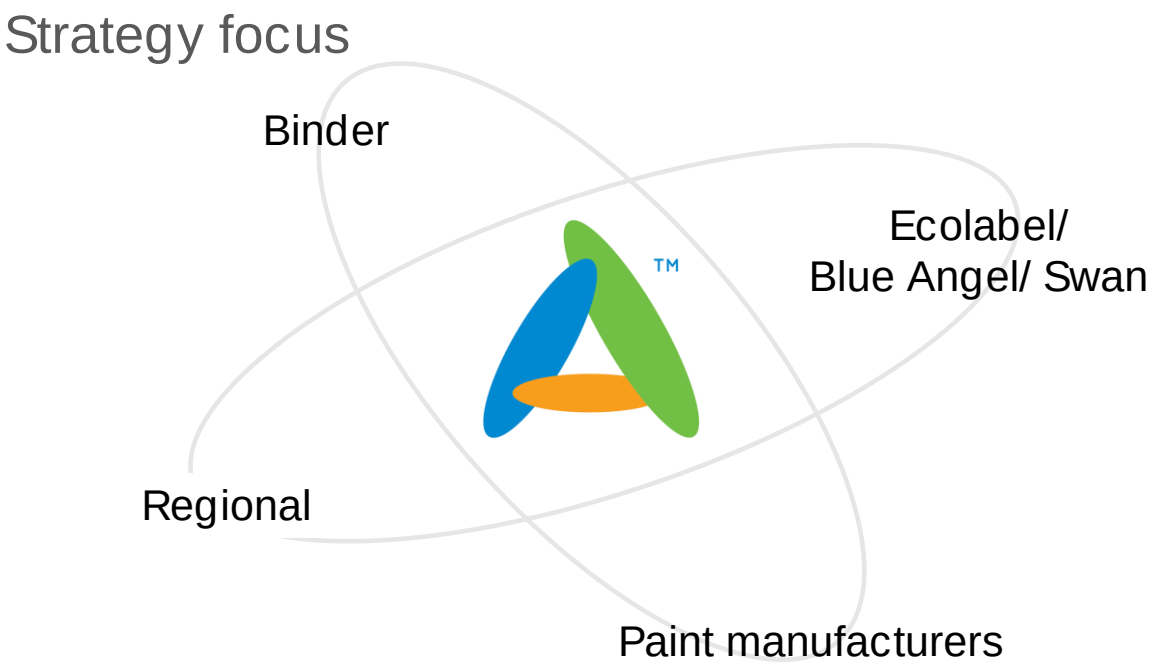


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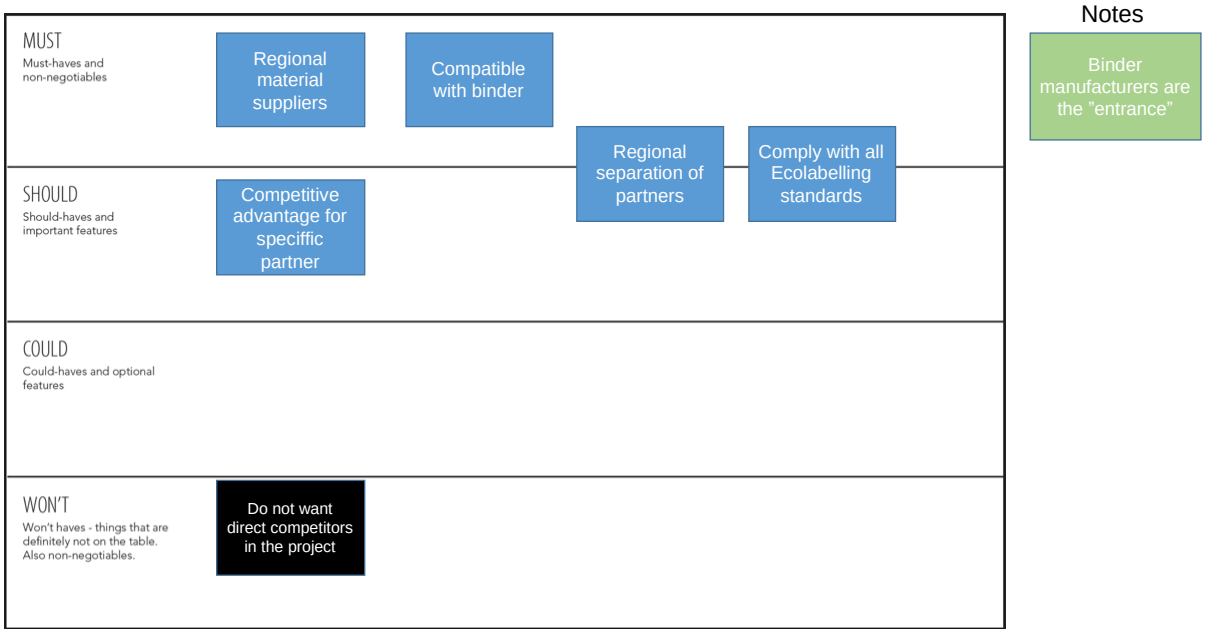
Table no. 4, Paint and Coating manufacturer requirements to take part in LIFE-ALFIO project.



Conclusions of potential costumers' and stakeholder in-depth qualitative survey

Below is listed main conclusions and decisions made after the in-depth interviews that directly impact the project implementation:

1. While proceeding interviews we were advised and learned that we need to include in in-depth qualitative survey also binder manufacturers, as they are the ones who define the paint chemistry and the binder as a component itself is the most influential part of the paint. As a result, we added 5 binder companies to the interviews.
2. We learned that we need to include the paint and coating industry leader as stakeholders at the beginning of the project, so we made the decision to invite industry stakeholders to supervise formulation development. We decided to form at least 4 stakeholders' groups that each include the paint manufacturer and the binder manufacturer representatives that together will supervise the formulation development.
3. We learned from paint manufacturers the industrial and target oriented formulation process that lead to decision to involve the industry stakeholder form paint specification development till the paint pilot batch manufacturing.
4. Raw material suppliers (a specially binder manufacturers) are the driving source to accelerate sustainable paint and coating product development. They keep the knowledge and recourses to design and innovate, where paint and coating manufacturers are more like users
5. We learned that the binder manufactures have very significant role for attracting the paint manufacturers interest about the On-line platform and the On-line platform launching role. The binder manufacturers will be launched in the On-line platform before the paint formulation publishing for promotional purposes, also as gate openers for raw material manufacturers and interest raising for the new Ecolabel certified frame formulations.
6. Binder companies design and manufacture binders, for different paint product use cases. In a paint manufacturing supply chain, they play the leading role. Binder manufacturers define material and potential paint systems that can be manufactured.
7. Raw material suppliers (a specially binder manufacturers) are the driving source to accelerate sustainable paint and coating product development. They keep the knowledge and recourses to design and innovate, where paint and coating manufacturers are more like users
8. The industry interest in new paint and coating applications are prioritized for interior versus exterior products, mostly driven by higher and immediate sustainability standards to introduce biocide and VOC reduction, therefore decision is made to focus on interior formulations.
9. Smaller paint and coating manufacturers are dependent from regional raw material suppliers, distributors, formulators and binder manufacturers, therefor the stakeholder's groups are formed regionally to provide variant formulations as well as avoid direct competition within the stakeholders.
10. We learned that Ecolabel will have new certificate standard, that are also delayed from publishing due to Covid-19 lockdown. Consulting with Ecolabel experts is known approximate requirements, still we need to consider this as potential risk.