



Next-Generation of Anti-Microbial Nano-Coating development: from research to real world uptake

27 August 2026 | 14:00-15:30

SUPREME x Triple-A-COAT joint event

Next-Generation Antimicrobial Nano-coatings for High-Traffic Surfaces



Funded by
the European Union



UK Research
and Innovation

Project funded by



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Education,
Research and Innovation SERI

Swiss Confederation

AGENDA

Time	Activity
14:00-14:05	Introduction of the workshop agenda and groups division
14:05-14:30	Activity 1: Innovation Areas group discussion – delve in barriers and actions
14:30-14:50	Groups presentation
14:50-15:00	Activity 2: White Paper presentation – delve in challenges and opportunities
15:00-15:25	Open discussion on challenges and opportunities
15:25-15:30	Wrap-up and main conclusions of the workshop

Activity 1: Innovation Areas group discussion – delve in barriers and actions

Group division (in-person)

- Each group will be given an **innovation area** to discuss
- Innovation areas contain KERs from the SUPREME, NOVA, TRIPLE-A-COAT AND STOP projects
- For each innovation area discuss
 - *Which barriers do we foresee to advance the KERs beyond the projects' end?*
 - *How the barriers could be overcome?*
 - *What actions do we need to overcome the barriers? Create a list.*
- Present back to the group the barriers and list of actions

Activity 1: Innovation Areas group discussion – delve in barriers and actions

Online Participants

- Online discussion on “*How to advance the next-generation of antimicrobial coatings*”
- Discuss:
 - *Which barriers do we foresee to advance the next-generation of antimicrobial coatings?*
 - *How the barriers could be overcome?*
 - *What actions do we need to overcome the barriers? Create a list.*
- Present back to the group the barriers and list of actions

Innovation Area 1: Nanomaterials and antimicrobial active components

This area covers the synthesis, modification and immobilisation of nanoparticles, antimicrobial compounds and other active components responsible for coating functionality.

KER Description	Project
Grafting of 2-AI onto oxidised nanocellulose	Triple-A-COAT
Functionalisation of nanocellulose with 2-AI through ion–ion interaction	Triple-A-COAT
Protocols for absorption of antimicrobial peptides on nanocellulose	Triple-A-COAT
Synthesis of the 2-AI precursor N-Boc-1,8-diaminooctane	Triple-A-COAT
Coatings based on customised TiOx nanoparticles	SUPREME
Coatings based on core–shell nanoparticles	SUPREME
Novel polypeptide-antimicrobial peptide HELP-AMP combination (H2mod1R) with antimicrobial properties	STOP
Nanoplate morphology of photoactive titanium dioxide for antimicrobial efficacy	STOP

Innovation Area 2: Bio-based, fibre and nanocellulose material platforms

This area covers nanocellulose formulations, fibre-based matrices, bio-based polymers, hybrid materials and the physical structuring of these platforms for use in functional coatings.

KER Description	Project
Nanocellulose formulations based on CNC and BNC.	Triple-A-COAT
Nanopatterning of nanocellulose through nanoimprint lithography and ion milling.	Triple-A-COAT
Coatings based on hybrid fibre–nanoparticle materials.	SUPREME
MFC types for hybrid fibre–nanoparticle coating products.	SUPREME
Hybrid MFC/PLA coating.	SUPREME
Hybrid bio-based polymers with cellulose-based coatings.	SUPREME

Innovation Area 3: Coating formulation and surface engineering

Covers coating formulation, cross-linking, adhesion promotion, nanopatterning and optimisation of surface properties. It focuses on achieving stable, durable and substrate-compatible formulations that can move from laboratory development to industrial application.

KER Description	Project
Nanocellulose coatings using cross-linkers and adhesion promoters.	Triple-A-COAT
Functional nanopatterned surfaces for anisotropic droplet spreading and directional motion.	Triple-A-COAT
Nanopatterning of nanocellulose through NIL and ion milling.	Triple-A-COAT
Antimicrobial coating formulation design and optimisation	SUPREME
Hierarchical polymer–nanocomposite coatings with excellent anti-fouling properties	STOP
Stable photoactive zinc oxide coating with long-lasting antimicrobial performance	STOP

Innovation Area 4: Application-specific antimicrobial coating solutions

This area covers final or near-market antimicrobial coating solutions for healthcare, textiles, automotive, buildings, packaging and frequently touched surfaces. It addresses sector-specific performance requirements, product qualification, customer acceptance and integration into existing products and processes.

KER Description	Project
Final selected Triple-A-COAT coating solutions	Triple-A-COAT
Antimicrobial nanocoatings for the automotive sector.	SUPREME
Antimicrobial nanocoatings for the textile sector.	SUPREME
Antimicrobial nanocoatings for the building sector.	SUPREME
Antimicrobial nanocoatings for the packaging sector.	SUPREME
SPARTHA biopolymer antimicrobial coating for medical textiles and instruments.	NOVA
Light-activated permanent coating family for frequently touched surfaces.	NOVA

Innovation Area 5: Scalable production and coating application technologies

This area covers the scaled production of coating components and technologies for spraying, applying, drying and deploying functional coatings. It addresses process repeatability, throughput, quality control, equipment requirements and transfer to industrial production lines.

KER Description	Project
Know-how for spraying functionalised nanocellulose coatings.	Triple-A-COAT
Scaled-up production of 2-AI, antimicrobial peptides and functionalised nanocellulose	Triple-A-COAT
Specialised coating applicator suite.	NOVA
Laser structuring robotic prototype to show proof-of-concept for the scale-up of production of laser-textured antimicrobial surfaces	STOP

Innovation Area 6: Performance, durability and real-world validation

This area covers methods and evidence for assessing antimicrobial efficacy, surface properties, durability and performance under realistic conditions. It addresses the need for harmonised protocols, representative test environments, long-term data and comparability with existing standards.

KER Description	Project
Research on microorganisms present on frequently touched surfaces in buses.	Triple-A-COAT
Assessment of antimicrobial properties against viruses, bacteria and fungi.	SUPREME
Model surface morphological analysis and durability effects of coatings.	SUPREME
Real-world efficacy test-method toolkit.	NOVA
Novel Hydro Touch test for antimicrobial surfaces	STOP
High-throughput SAXS instrumentation for thin layers	STOP
Epidemiological model for interpreting field data	STOP

Innovation Area 7: Safety, regulatory and sustainability assessment

This area covers biocompatibility, nanotoxicology, Safe and Sustainable by Design, life-cycle assessment and eco-design of antimicrobial coatings. It addresses safety and environmental data gaps, regulatory uncertainty, assessment methodologies and the integration of evidence into design decisions.

KER Description	Project
New life-cycle inventory data for chemicals	Triple-A-COAT
Systematic procedure for rapidly developing chemical life-cycle inventories.	Triple-A-COAT
LCA results for developed coatings, coating constituents and the benchmark product.	Triple-A-COAT
Nanotoxicological evaluation supporting safer-by-design principles.	SUPREME
Eco-design principles based on LCA.	SUPREME
ClickIt-Well in vitro biocompatibility and immunocompatibility test system.	NOVA
Biocide-specific amendment of the SSbD framework.	NOVA
Cytotoxicity of quaternary ammonium compounds used in existing antimicrobial coatings	STOP

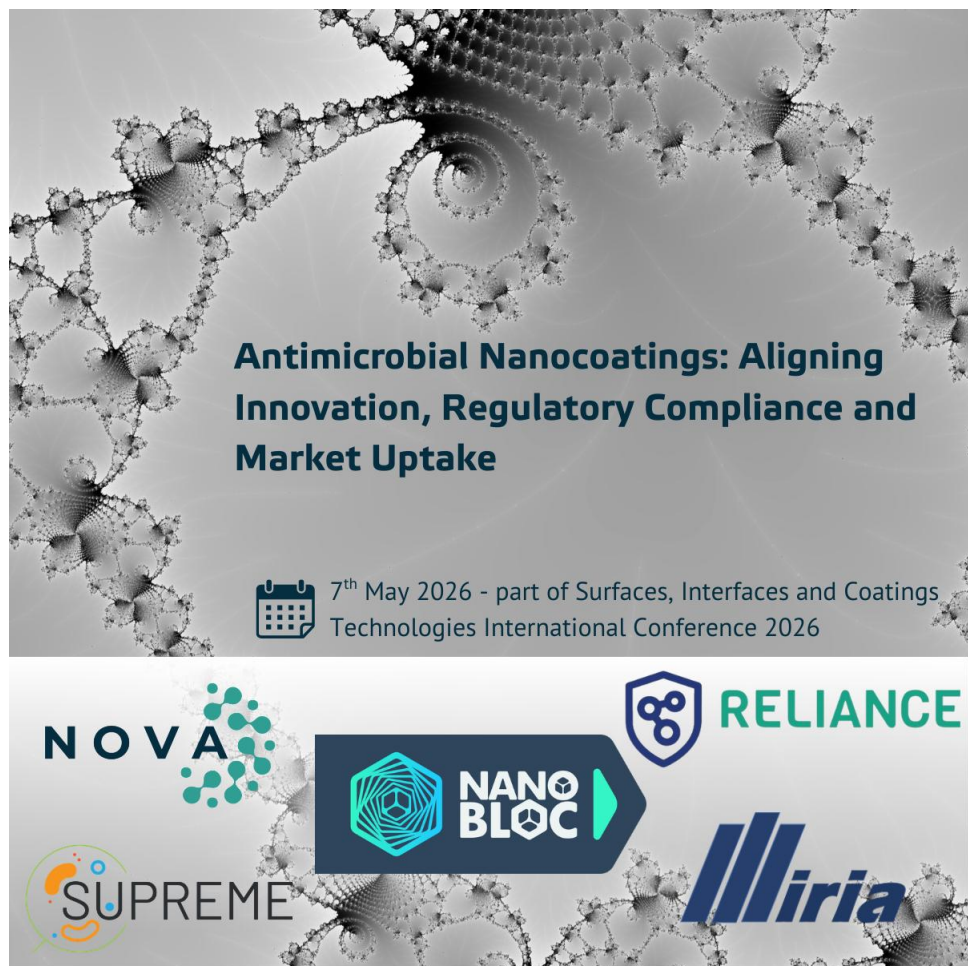
Innovation Area 8: Digital, economic and market decision-support tools

This area covers predictive models, digital interfaces, techno-economic assessments and stakeholder and market intelligence supporting coating development and exploitation. It addresses data quality, model validation, tool ownership, market positioning, business models and investment decisions.

KER Description	Project
Stakeholder analysis and market report.	SUPREME
Techno-economic analysis.	SUPREME
Machine learning-based in-silico coating	NOVA
Prediction models and user interface.	NOVA

PRESENTATIONS
2-3 MIN EACH GROUP

Activity 2: White paper presentation – discussion on challenges and opportunities



Antimicrobial Nanocoatings: Aligning Innovation, Regulatory Compliance and Market Uptake

7th May 2026 - part of Surfaces, Interfaces and Coatings Technologies International Conference 2026

NOVA

NANO BLOC

RELIANCE

SUPREME

iria



Activity 2: White paper presentation – discussion on challenges and opportunities

Workshop Session 4 – The Future: Aligning Research, Regulation and Sustainability Real Surfaces

Moderated Interactive Roundtable

Session Chair:

Dr. Sara Espinoza, DECHEMA e.V., NOVA Project

16:20 - 16:35	Predictive & Digital Design • How far are we from modelling-driven material approval? • What research gaps remain?	Plenary
16:35 - 16:50	Safety, SSbD & Environmental Impact • How do we operationalise Safe and Sustainable by Design? • What test methods need harmonisation?	Plenary
16:50 - 17:05	Industrial Deployment & Standardisation • What standards are missing? • What demonstration cases are still needed? • What should FP10 fund?	Plenary
17:10 - 17:30	Synthesis of findings: • Repeated bottlenecks • Common regulatory issues • Shared funding needs • Standardisation gaps Joint Workshop Outcome: Prague Position Paper on Safe and Sustainable Antimicrobial Nanocoatings (policy-oriented)	Sara Espinoza, DECHEMA e.V., Germany (NOVA Project)

Activity 2: White paper presentation – discussion on challenges and opportunities

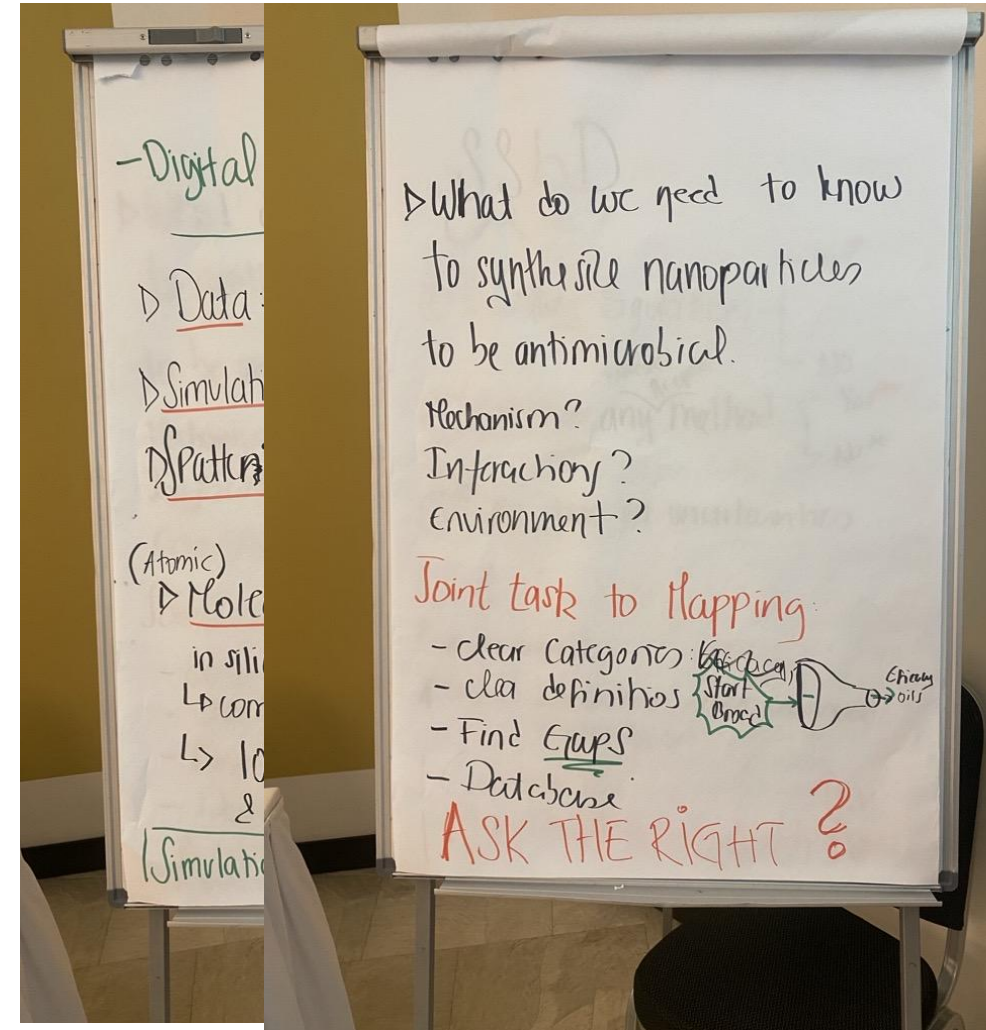
Predictive and Digital Design

- How far are we from modelling-driven material approval?
- What research gaps remain?

Simulation should be conducted before and during experimentation, not retrospectively.

Linking modelling scales to coating performance

limited and heterogeneous datasets constrained the original ambition to develop robust AI-based predictive models.



Activity 2: White paper presentation – discussion on challenges and opportunities

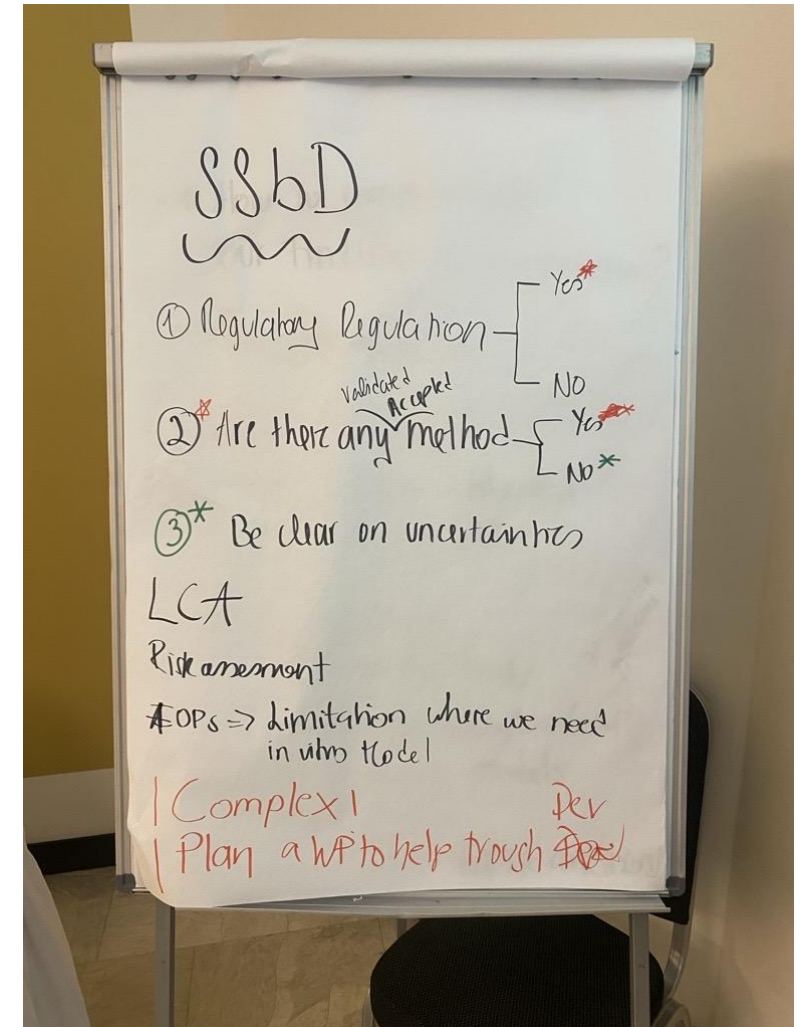
Safety, SSbD & Environmental Impact

- How do we operationalise Safe and Sustainable by Design?
- What test methods need harmonisation?

Regulatory expertise should be embedded in research consortia.

structured early dialogue with authorities;

Use-case definition, claims and regulatory classification



Activity 2: White paper presentation – discussion on challenges and opportunities

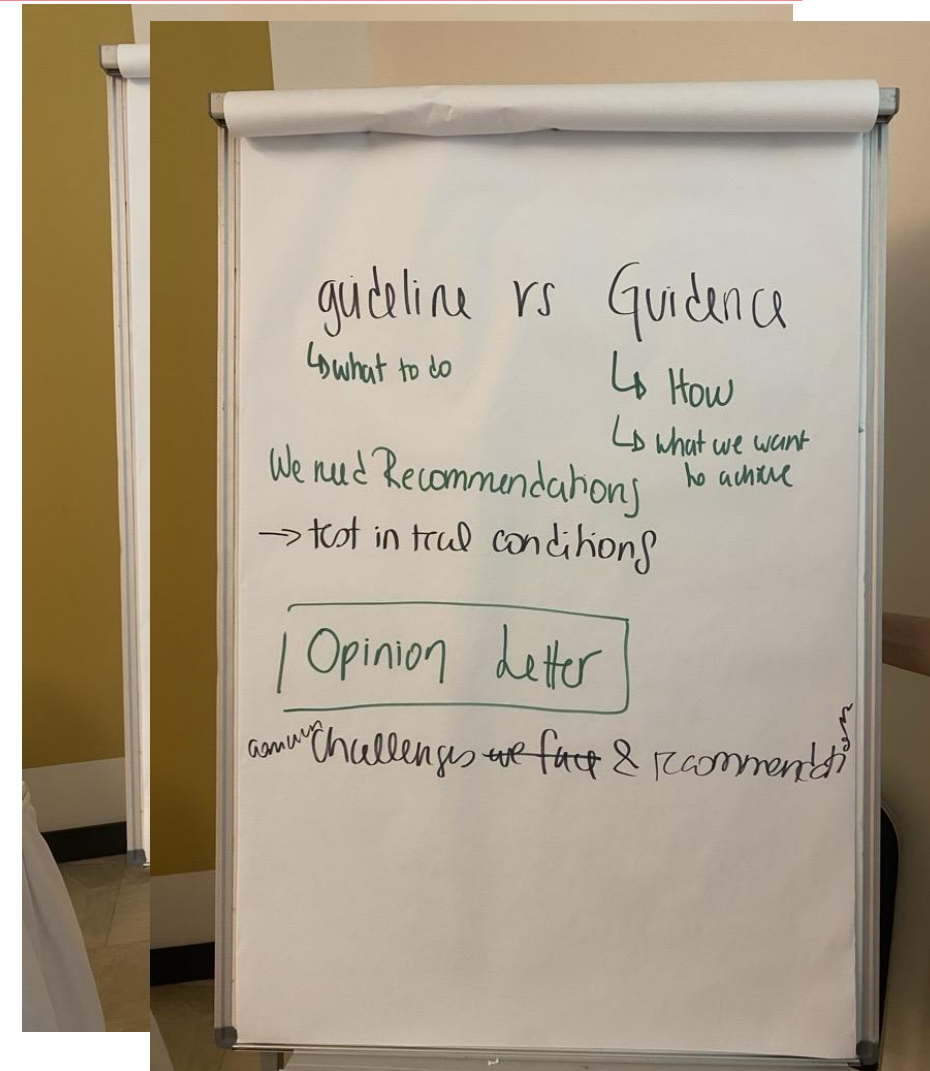
Industrial Deployment & Standardisation

- What standards are missing?
- What demonstration cases are still needed?
- What should FP10 fund?

Testing under real-life conditions is the central deployment gap.

Antimicrobial testing must cover greater biological complexity.

We need operational guidance, not another high-level statement of principles.



Activity 2: White paper presentation – discussion on challenges and opportunities

Opinion Letter or Perspective Article?

Opinion letter

FOCUSED

BEST WHEN **One urgent position or policy ask**

ADVANTAGES

- Faster to prepare
- Direct policy influence
- Less workshop-method detail

LIMITATIONS

- Too narrow for all themes
- Limited evidence and framework
- Lower long-term scientific value

Perspective article

BEST FIT

BEST WHEN **Connecting modelling, SSbD, testing, regulation and deployment**

ADVANTAGES

- Supports an integrated roadmap
- Combines workshop + literature
- Strong cross-sector relevance

LIMITATIONS

- Needs structured evidence
- Longer preparation
- Regulatory review advisable



Next-Generation of Anti-Microbial Nano-Coating development: from research to real world uptake

THANK YOU!

SUPREME x Triple-A-COAT joint event

Next-Generation Antimicrobial Nano-coatings for High-Traffic Surfaces



Funded by
the European Union



UK Research
and Innovation

Project funded by



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Education,
Research and Innovation SERI

Swiss Confederation