

COMBAT

COMPREHENSIVE TECHNOLOGY FOR THE MATERIAL
AND ENERGY PROCESSING OF BATTERIES

AUTOMOTIVE LITHIUM BATTERY

9 types of plastics



Plastové kryty a držáky



Electrolyte

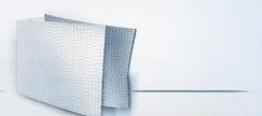
Separator



Lithiumové soli



Organická rozpouštědla



Other components



Lithium-iontové články



Alumíniové fólie



Měděné fólie



Měděné a hliníkové vodiče



Chlazení a elektronika

Control electronics

Cooling system

copper and aluminium conductors

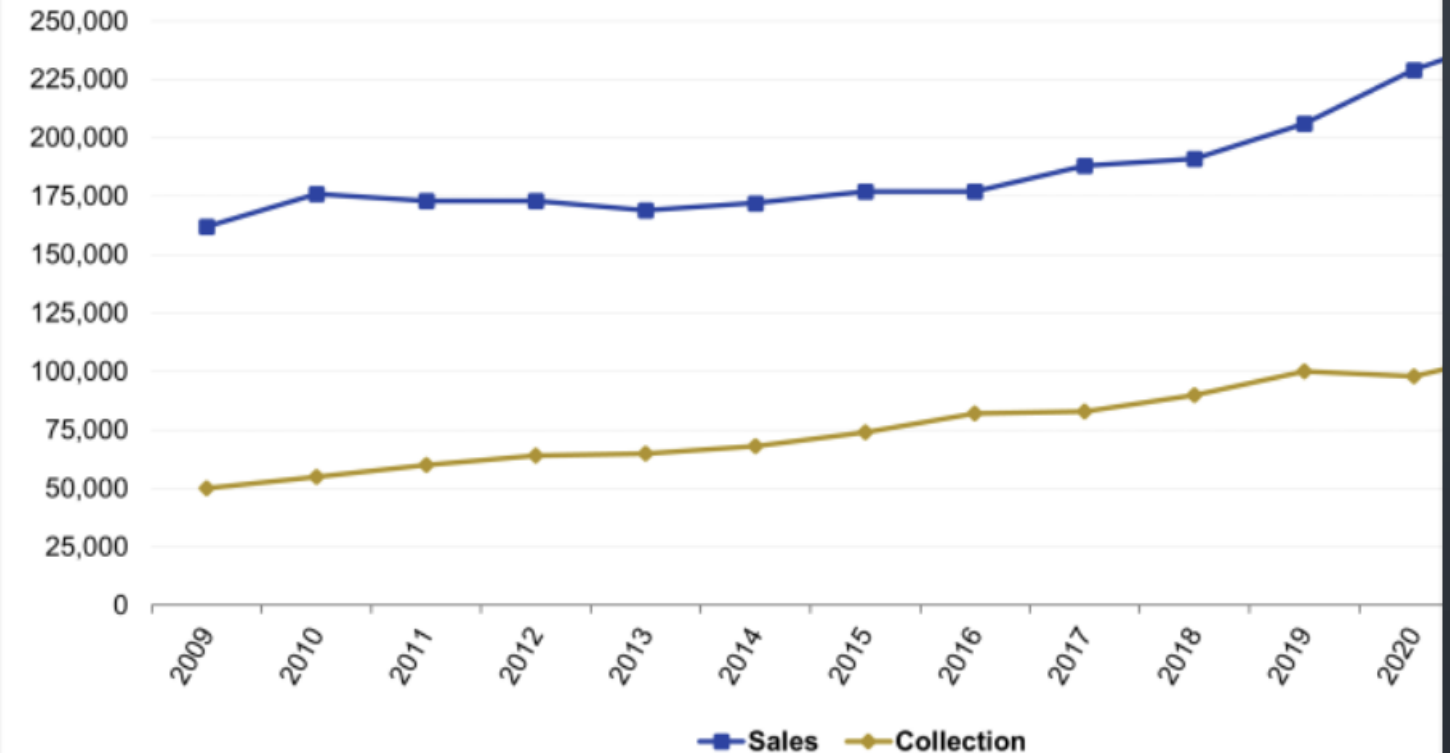
Metal frame



- THE GROWING NEED FOR RECYCLING BATTERIES AND ACCUMULATORS
- SAFETY WHEN HANDLING HAZARDOUS MATERIALS
- TECHNOLOGICAL COMPLEXITY (DIVERSITY, SEPARATION OF METAL AND CHEMICAL COMPONENTS).
- THE NEED FOR INNOVATION IN RECYCLING TECHNOLOGIES.

Sales and collection of portable batteries and accumulators, EU, 2009–2022

(tonnes)



Note: Eurostat estimates 2009-2014 and 2022

Source: Eurostat (online data code: env_waspb)

THE VOLUME OF BATTERY WASTE
IS INCREASING

INTEREST IN THE RECYCLING OF METAL
COMPONENTS DOMINATES SO FAR

POTENTIAL OF NON-METALLIC
COMPONENTS

CLEAN RECYCLING AND DISPOSAL
TECHNOLOGIES

CIRCULARITY

STRENGTHENING MATERIAL SELF-
SUFFICIENCY

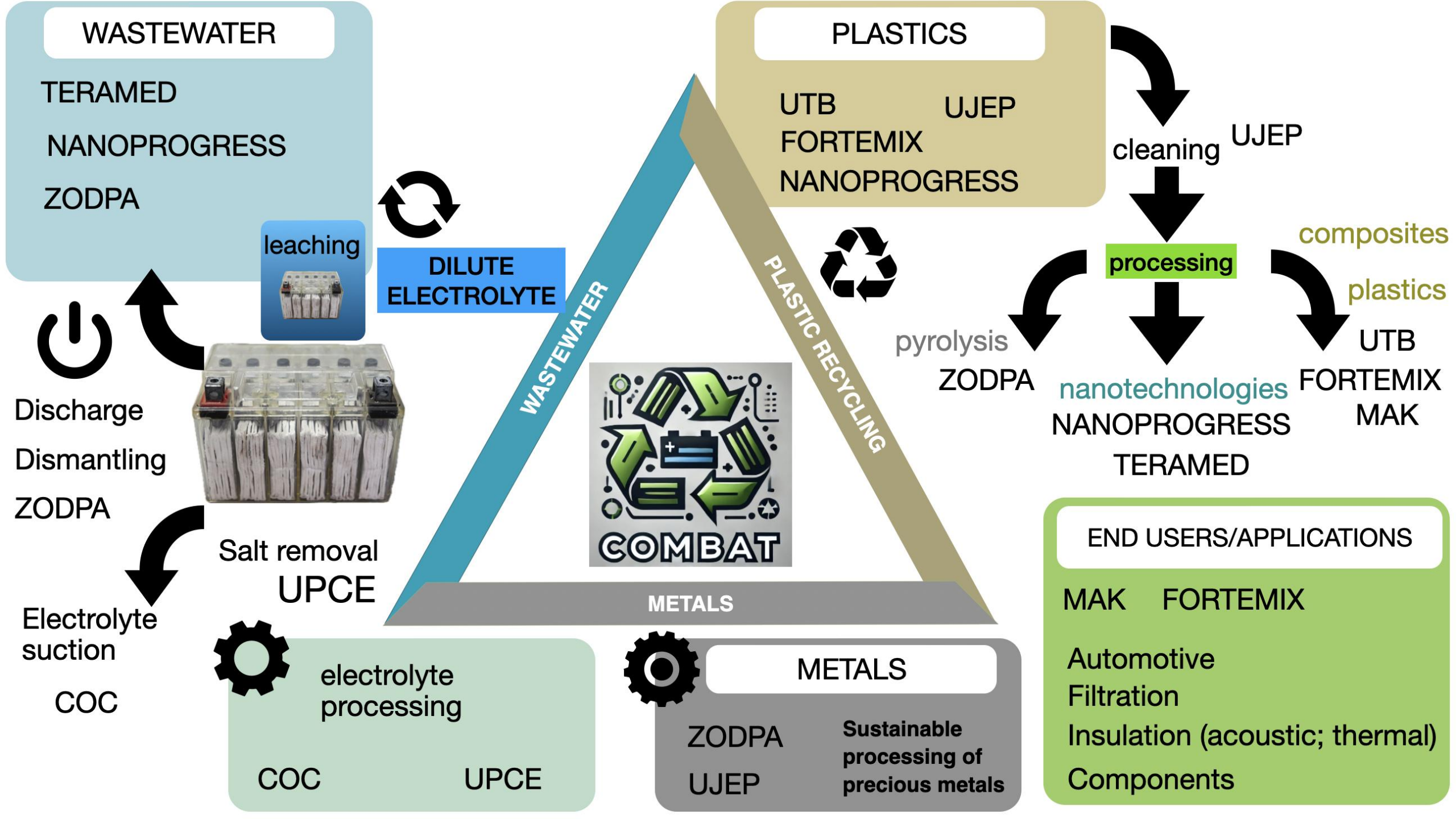
REUSE OF INDIVIDUAL COMPONENTS

- WASTEWATER (ELECTROLYTE PROCESSING)
- PLASTICS RECYCLING (CELLS)
- SUSTAINABLE PROCESSING OF PRECIOUS METALS



PARTNERS OF THE PROJECT



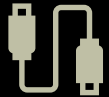


BATTERY MARKET



AUTOMOTIVE

electromobility, strict safety standards
chemistry, long service life



CORDLESS TOOLS

Corded – cordless (DIY; professionals)
High performance, fast charging, temperature limits, compatibility



APPLIANCES

Robotic/handheld vacuum cleaners
Focus on price, compatibility, home safety

GROWTH PREDICTION



AUTOMOTIVE

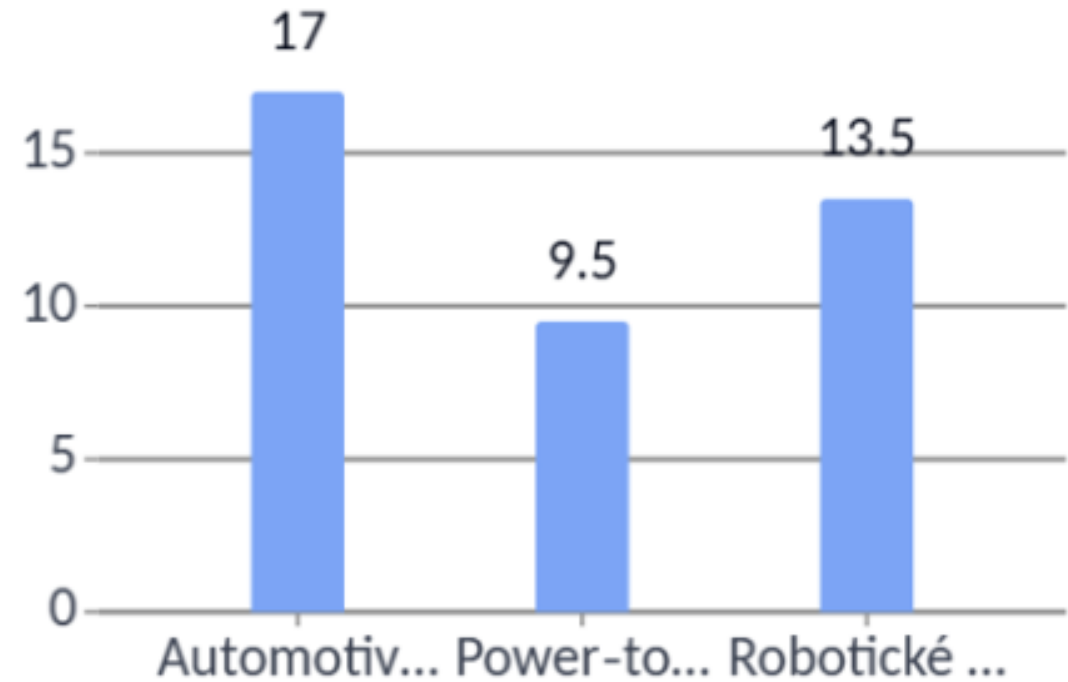


CORDLESS TOOLS



APPLIANCES

Predikce růstu (CAGR, veřejné reporty)



* proxy pro akumulátorové spotřebiče

END USERS /APPLICATIONS



AUTOMOTIVE -
PLASTICS MAINLY FOR
NON-VISIBLE PARTS
(PRIMARILY PP,
POLYCARBONATE)



CONSTRUCTION
INDUSTRY



COMPOSITES
(PRODUCTION
COMPONENTS FOR
VARIOUS INDUSTRIAL
APPLICATIONS)



GARDENING (GRASS
TILES, DRAINAGE
CHANNELS AND
PIPES, DECORATIVE
FLOWER POTS AND
TROUGHS OR OTHER
GARDENING
APPLICATIONS),



FILTRATION (FILTERS
FOR INDUSTRIAL
APPLICATIONS)



INSULATION(SOUND,
HEAT)



CHEMICAL
SUBSTANCES(ELECTR
OLYTICS
COMPONENTS)

BENEFITS OF THE DEVELOPED SOLUTION



SAFE AND
EFFICIENT
DISCHARGE OF
BATTERIES/ACCUM
ULATORS



SAFE
DISMANTLING



EFFECTIVE
SEPARATION OF
INDIVIDUAL
ELEMENTS
(PLASTICS,
PRECIOUS METALS,
ELECTROLYTE)



SUSTAINABLE
SOLUTION,
CIRCULARITY



EFFECTIVE
PROCESSING OF
ELECTROLYTE,
STABILIZATION
WATERS, PLASTICS



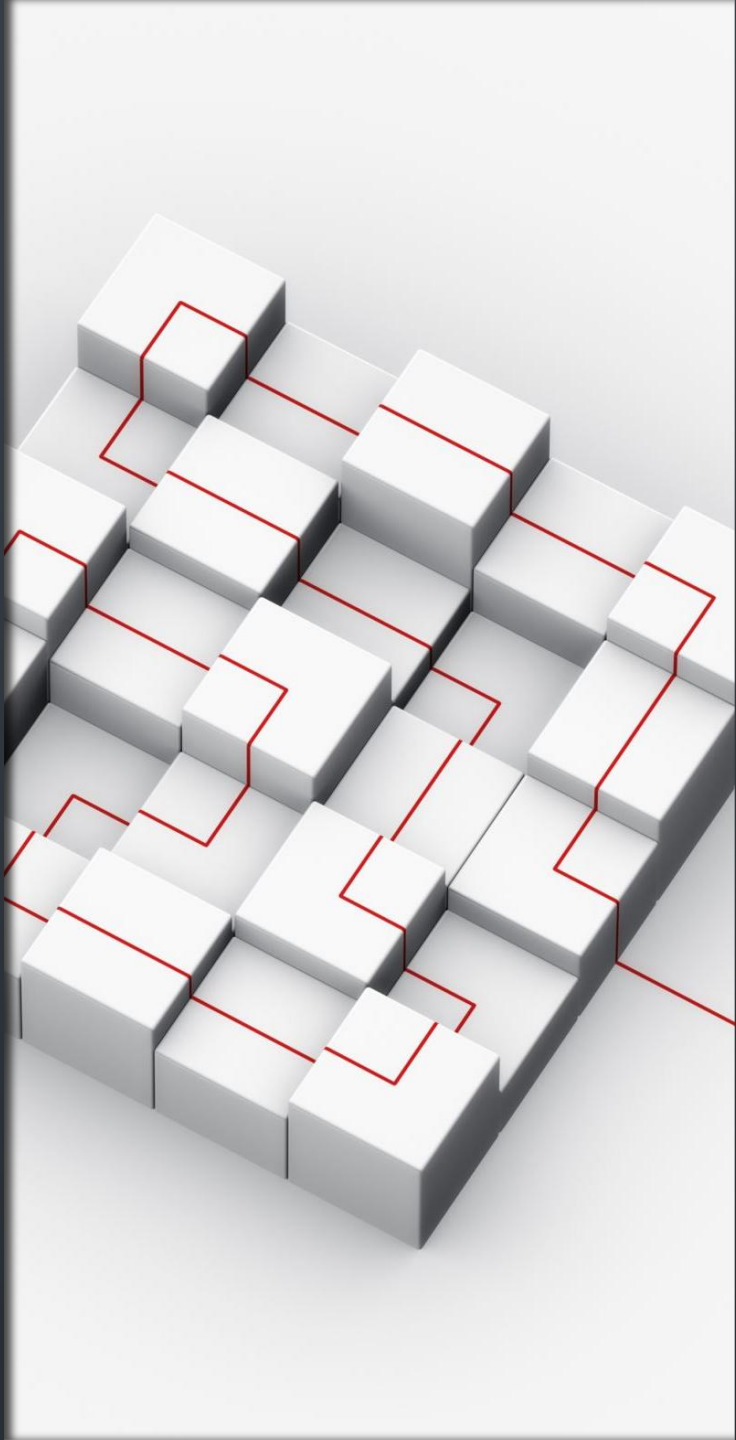
VERIFICATION OF
THE POSSIBILITIES
OF FURTHER USE
OF ELEMENTS
FROM A
TECHNOLOGICAL,
ENVIRONMENTAL
AND SAFETY POINT
OF VIEW



THE EMERGENCE
OF ADVANCED
TECHNOLOGICAL
SOLUTIONS
(NANOTECHNOLO
GY, FILTERS,
INSULATION, ETC.)



USE OF SEPARATED
ELEMENTS IN
INDUSTRIAL AREAS



SOLUTION IN THE PROJECT

- 06/2025 – 12/2028
- **1. STAGE** - DESIGN OF METHODOLOGIES, SELECTION OF MATERIALS, INITIAL TESTING
- **2. STAGE** - VERIFICATION OF PROPOSED METHODOLOGIES, DEVELOPMENT OF TECHNICAL SOLUTION PROCEDURES. MAPPING SUITABLE APPLICATION AREAS AND POTENTIAL USERS.
- **3. STAGE** - DEVELOPMENT AND OPTIMIZATION; REACHING OUT TO POTENTIAL PARTNERS AND USERS OF THE DEVELOPED SOLUTIONS.
- **4. STAGE** - SCALING UP OF DEVELOPED METHODOLOGIES; PILOT-SCALE AND FULL-SCALE TESTING; COMMERCIAL APPLICATION OF DEVELOPED SOLUTIONS.

THANK YOU FOR YOUR ATTENTION

More about the project: <https://polyenvi21.cz>