



**As**ival



# OPTIMIZATION OF THE DESIGN OF ALTERNATIVE ASPHALT MIXTURES

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DEVELOPMENT

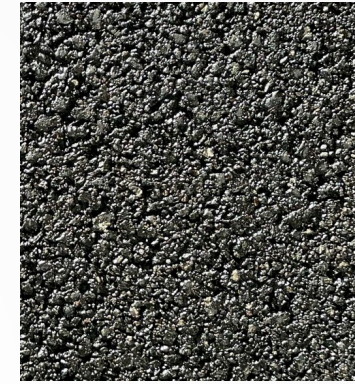
# INTRODUCTION



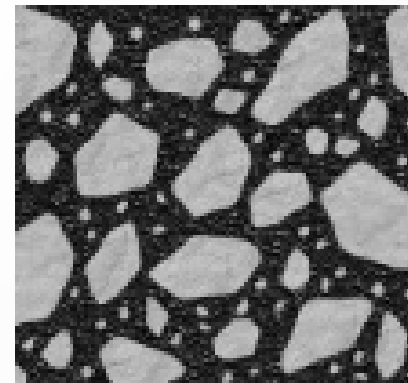
Natural aggregates



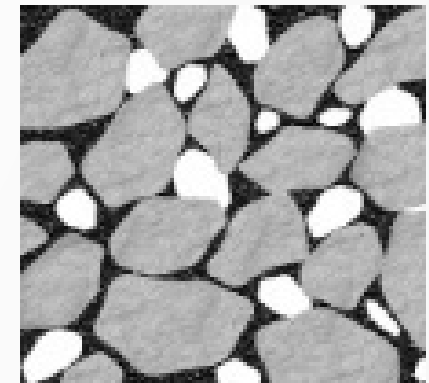
Binder



ASPHALT MIXTURE



Dense asphalt mixture



Porous asphalt mixture

# ACADEMIC STATUS

## Mandatory training (completed in 2021)

- 40 h basic formation
- 40 h advanced formation

## International scientific publications

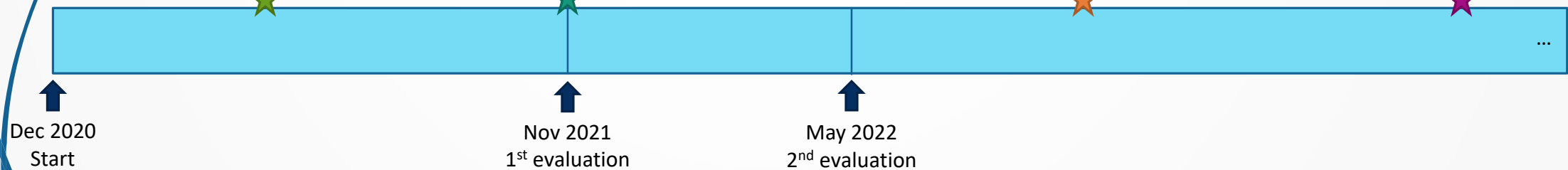
- Journal articles:
  - 1 draft: review on microplastics
  - 1 draft: asphalt mixtures with residual fibres
- Congresses:
  - TRA2022 (Nov 22)
  - SURF2022 (Sep 22)

## Evaluations

- Nov 21 → favourable

## International mobility

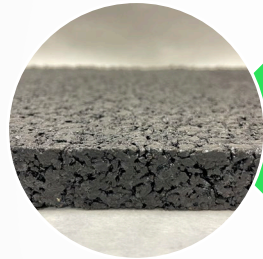
- Options: end of 2022 or 2023



# MAIN OBJECTIVES

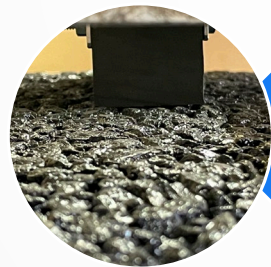


Selection of the most suitable alternative materials for new mixtures



Optimization of the design of experimental mixtures:

- \* Residual fibres
- \* Noise and emission-reduction

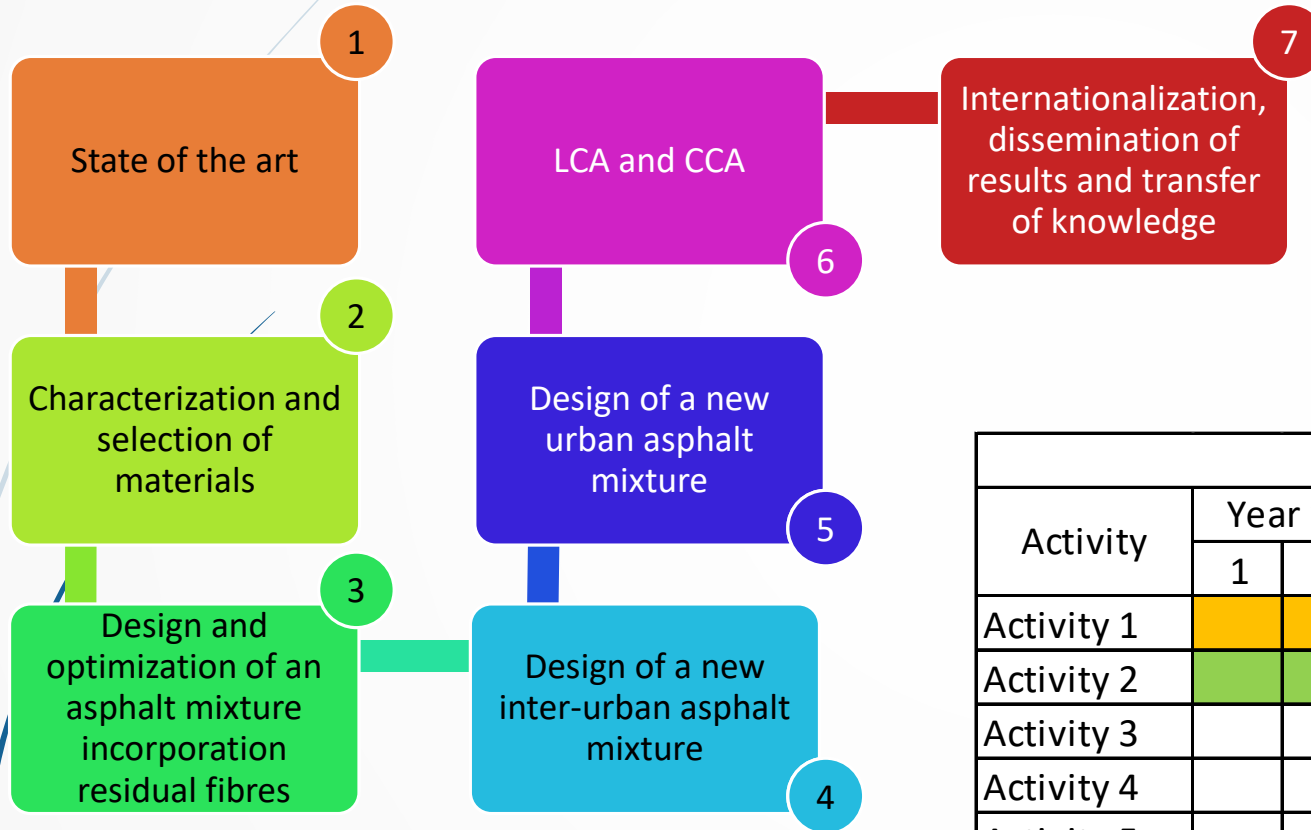


Analysis of the capacity of porous mixtures to retain microplastics



Economic and environmental validation of new mixtures

# ACTIVITIES



TIMETABLE

Activity	Year 1 (trimester)			Year 2 (trimester)				Year 3 (trimester)				
	1	2	3	4	5	6	7	8	9	10	11	12
Activity 1	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Activity 2	Green	Green	Green	Green								
Activity 3				Green	Green	Green	Green	Green	Green			
Activity 4				Blue	Blue	Blue	Blue	Blue	Blue	Blue		
Activity 5				Blue	Blue	Blue	Blue	Blue	Blue			
Activity 6									Magenta	Magenta	Magenta	
Activity 7					Red	Red	Red	Red	Red	Red	Red	Red

↑ NOW



# RESEARCH DEVELOPMENT

## AsFival

1

Which fibre?  
 Fibre content?  
 Binder content?  
 Manufacturing process?

2



Waste fibres
Ecofibre
Starched (textile)
Pulp-0705 (aramid)
Indigo (textile)

3



Dense	Porous
Void content	Void content
Marshall	Cantabro particle loss
Water sensitivity	Water sensitivity
Wheel tracking test	Binder draindown

# RESEARCH DEVELOPMENT

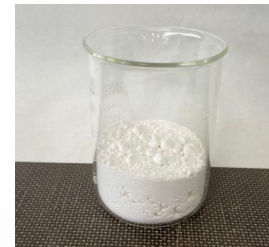
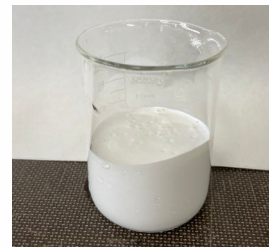
1



microplastics



2



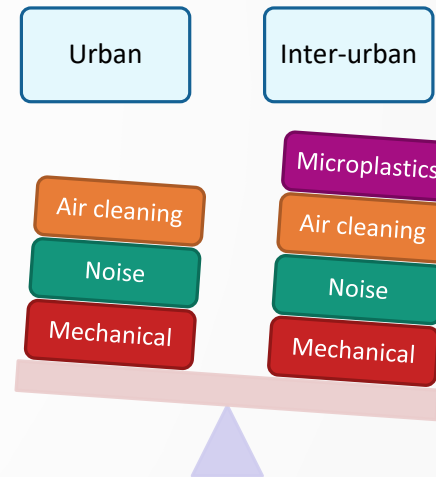
### Photocatalytic materials

Itertio (liquid)

Aeroxide (powder)

Tiona (powder)







5 + 4



Urban	Inter-urban
Mechanical prop.	Mechanical prop.
Texture spectrum	Texture spectrum
Flow resistivity	Flow resistivity
	Absorption coef.



# FUTURE DEVELOPMENT

- Achieve the final designs for   
- Perform LCA and CCA of final designs 
- Dissemination of results (journal papers, congress, etc.) 
- Internationalization (mobility is expected) 
- Total accomplishment of basic and advanced skills

THANK YOU!

NOW TIME FOR QUESTIONS

