ANALYSIS OF BITUMINOUS MIXTURES WITH WASTE POLYMERS AND ALTERNATIVE AGGREGATES WITH WAX MODIFIED BINDER

SPEAKER

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1 GENERAL AIM

The main objective is the demonstration of the technical viability of new environmental friendly asphalt mixes by different ways:

- Incorporating polymer waste in their composition.
- Replacing the maximum quantity of natural aggregate .
- Decreasing the manufacturing temperature.

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2 FRAMEWORK

Asphalt mixtures

BITUMEN

AGGREGATES

Sustainable asphalt mixtures

POLYMERIC WASTE

PE

PP

PS

Rubber

ALTERNATIVE AGGREGATES

EAF Slag

RAP

ADDITIVES

Sasobit

Kemfluid

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3 RELATED SCIENTIFIC ACTIVITY

ISI JOURNAL PUBLICATIONS

Lastra-González, P., Calzada-Pérez, M.A., Castro-Fresno, D., Vega-Zamanillo, Á., Indacoechea-Vega, I. (2016): *Comparative analysis of the performance of asphalt concretes modified by dry way with polymeric waste*. Construction & Building Materials. **Impact factor: 2.296 (Q1).** Status: Published.

Lastra-González, P., Indacoechea-Vega, I., Calzada-Pérez, M.A., Castro-Fresno, D., Carpio-García, J., (2016): *Analysis of the skid resistance and adherence between layers of Asphalt Concretes Modified by Dry Way with Polymeric Waste.* Construction & Building Materials. **Impact factor : 2.296 (Q1).** Status: Under review.

Vega-Zamanillo, Á., Indacoechea-Vega, I., **Lastra-González, P.,** Calzada-Pérez, M.A., Fernández-Ortega, J. Á., (2015): *Analysis of the use of cupola furnace slags, green sand and reclaimed asphalt pavement in asphalt concrete mixtures for low intensity traffic*. Revista de la Construcción. **Impact factor : 0.234 (Q4).** Status: Under review.

3 RELATED SCIENTIFIC ACTIVITY

OTHER JOURNAL PUBLICATIONS

Lastra-González, P., Indacoechea-Vega, I. (2014): POLYMIX, valorización de residuos poliméricos en mezclas bituminosas. RETEMA: Revista Técnica de Medio Ambiente. Status: Published.

Lastra-González, P., Indacoechea-Vega, I. (2015): GREENROADS: mejora de la sostenibilidad en el sector de la carretera. RETEMA: Revista Técnica de Medio Ambiente. Status: Published.

CONFERENCE PAPERS

Lastra-González, P. (2014): *Towards sustainable pavements with plastic waste.* 13th Annual International Conference on Asphalt, Pavement Engineering and Infrastructure. Liverpool John Moores University (Liverpool, U.K.).

Lastra-González, P., Calzada-Pérez, M.A., Indacoechea-Vega, I., Castro-Fresno, D., Vega-Zamanillo, Á. (2015): *Asphalt concrete mixture with recycled aggregates and modified bitumen at reduced temperature.* 3rd International Conference on Advances in Civil, Structural and Mechanical Engineering. The IRED. (Birmingham, U.K.).

Lastra-González, P., Indacoechea-Vega, I., Calzada-Pérez, M.A., Vega-Zamanillo, Á., Pascual-Muñoz, P., Castro-Fresno, D. (2015): *GREENROAD: Enhancing the sustainability of the road sector.* WASCON 2015 Resource Efficiency in Construction. ISCOWA. (Santander, Spain).

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3 RELATED SCIENTIFIC ACTIVITY

MOBILITY

3-month internship at the **Nottingham Transportation Engineering Centre (NTEC),** at Nottingham (U.K.). September 21 to December 21, 2015.

SEMINARS

POLYMIX: Development of asphalt mixtures with polymeric waste. Department of Road Construction from the Madrid Regional Government. 2014. Madrid (Spain).

2nd Joint meeting about US - EU collaboration on infrastructure projects. Federal Highway Administration - European Commission, Madrid (Spain), 14-15 September 2015.

GREENROAD: Application of alternative materials to development of bituminous mixtures. Department of Public Works from the Santander City Hall. 2015. Santander (Spain).

3 RELATED SCIENTIFIC ACTIVITY

TRAINING COURSES

Statistics for research in construction engineering I and II (2016). Duration: 20 hours. Organiser: Construction Technology Applied Research Group (GITECO).

EDUC Advanced course training (2016). Duration: 40 hours. Organiser: EDUC

Course of rheology and viscoelasticity (2015). Duration: 10 hours. Organiser: TA Instruments.

EDUC Basic course training (2013). Duration: 40 hours. Organiser: EDUC.

4 EVALUATION GUIDE

Basic competences	Science and Technique	Technology	Training courses	Results	SWOT analysis	Work plan	Mobility	Funding	Ethics
CB11	✓	✓	✓						
CB12				✓		✓	✓		
CB13				✓					
CB14					✓				
CB15				✓			✓		
CB16				✓					✓

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Thank you!

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