



PREMIO MPA 2023 A LAS MEJORES PRÁCTICAS AMBIENTALES

ASEFMA abre la convocatoria del X Premio Mejores Prácticas Ambientales (MPA) que reconoce la innovación y sostenibilidad en materia de fabricación, extendido, aplicación y transporte de mezclas asfálticas

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## INCREASING ASPHALT CIRCULAR ECONOMY

**ÚNICO:green**  
Una compañía participada por Sacyr Servicios

 **Cirtec**  
CIRCULAR ECONOMY ON THE ROAD

**sacyr** green  
SERVICIOS

# CIRCULAR ECONOMY

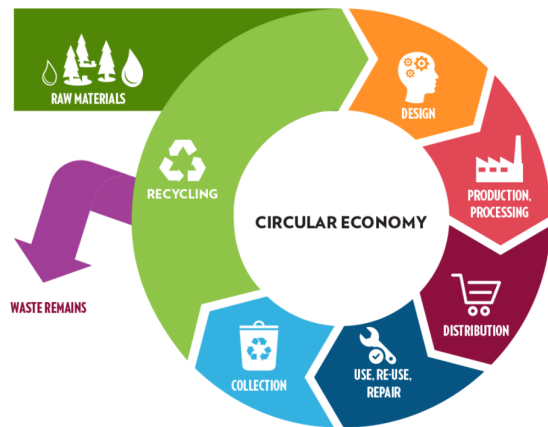


*Pic credit: Circular Economy Guild*

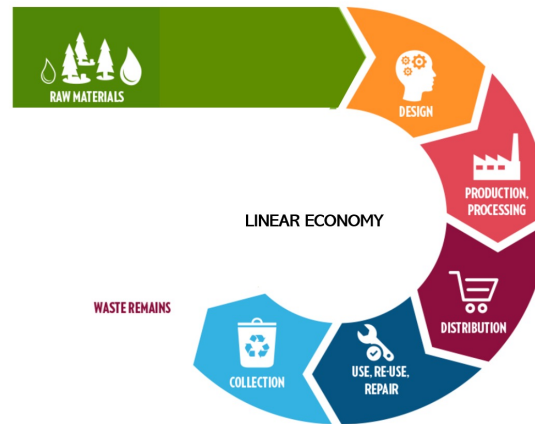
The circular economy is a [model of production and consumption](#), which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the **life cycle of products is extended.**

#ICA4point0

# CIRCULAR ECONOMY



*Pic credit: Circular Economy Guild*



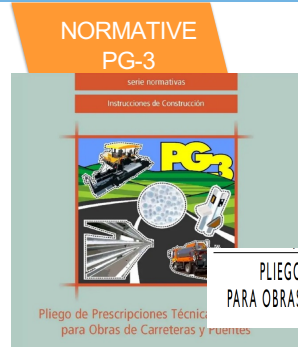
*Pic credit: Circular Economy Guild*



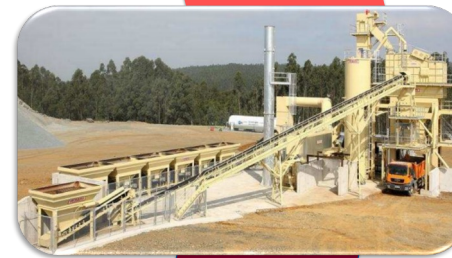
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Pic credit: Circular Economy Guild



PMB + CRMB



Asphalt Paving



MILLING



SURFACE TREATMENT





NORMATIVE  
PG-4



PLIEGO DE PRESCRIPCIONES TÉCNICAS GENERALES  
PARA OBRAS DE CONSERVACIÓN DE CARRETERAS (PG-4)

Pliego de Prescripciones Técnicas Generales  
para Obras de Carreteras y Puentes

RECYCLING  
STRUCTURAL  
REPAIR



MILLING



EMULSION  
PLANT



EMULSIÓN  
TRANSPORT



SUPERFICIAL  
REPAIR



#ICA4point0





SIEVING



CRUSHING



MILLING



SURFACE TREATMENT



PAVING



COLD ASPHALT PLANT



NORMATIVE PG-4

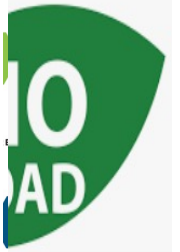
### PLIEGO DE PRESCRIPCIONES TÉCNICAS GENERALES PARA OBRAS DE CONSERVACIÓN DE CARRETERAS(PG-4)

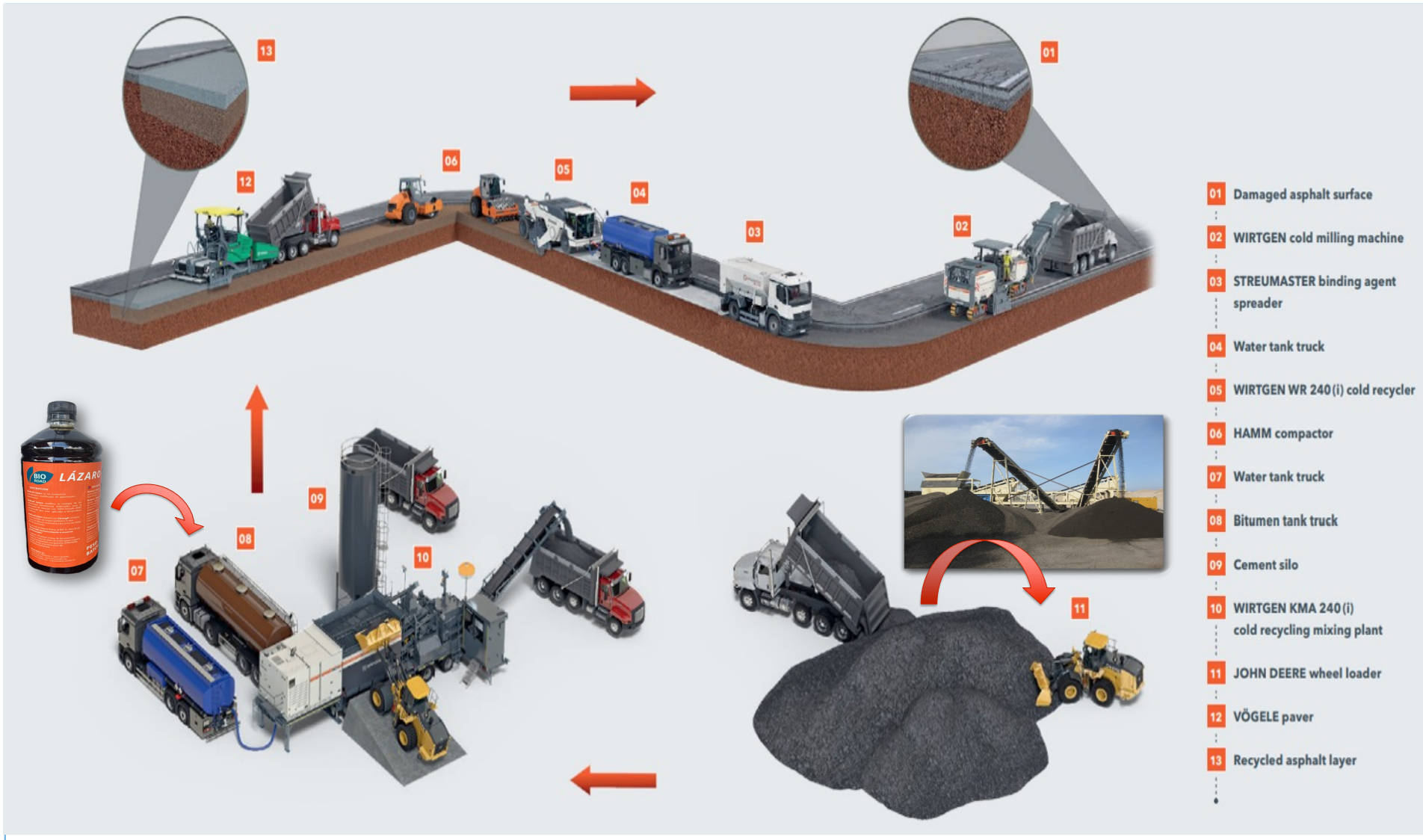
#### ÍNDICE

ARTÍCULO 20. REUTILIZACIÓN IN SITU CON EMULSIÓN DE CAPAS BITUMINOSA

ARTÍCULO 21. REUTILIZACIÓN IN SITU CON CEMENTO DE CAPAS DE FIRME.

ARTÍCULO 22. REUTILIZACIÓN EN CALIENTE Y SEMICALIENTE EN CENTRAL DE CAPAS BITUMINOSAS.





- 01 Damaged asphalt surface
- 02 WIRTGEN cold milling machine
- 03 STREUMASTER binding agent spreader
- 04 Water tank truck
- 05 WIRTGEN WR 240(i) cold recycler
- 06 HAMM compactor
- 07 Water tank truck
- 08 Bitumen tank truck
- 09 Cement silo
- 10 WIRTGEN KMA 240 (i) cold recycling mixing plant
- 11 JOHN DEERE wheel loader
- 12 VÖGELE paver
- 13 Recycled asphalt layer



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# WHAT is BioRoad? : Eco-Friendly Additives



## What is BIO ROAD?

- BioRoad is an **ECOLOGICAL** range of additives for enhancing asphalt workability
- Made up with **30% of waste olive oil production**.



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# WHY BioRoad? : Eco-Friendly Additives



## Does BIO ROAD really help olive oil industry?

Premio en el Galardón Internacional del Aceite de Oliva Ciudad de Jaén

Estos son los premiados en la segunda edición del Galardón Internacional del Aceite de Oliva Ciudad de Jaén

Hueso de aceituna usado como elemento principal para fabricar asfalto. El talento y éxito gastronómico basado en el aceite de oliva. Son tan sólo 2 muestras de los galardonados









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# WHERE BioRoad? :

## Types of BioRoad



 <b>LÁZARO</b>	<ul style="list-style-type: none"> <li>• Specific additive 100% RAP cold recycling in plant</li> <li>• <u>New product</u> for enhancing RAP recycling</li> </ul>	 <b>2023</b>
 <b>WARM MIX</b>	<p>Specific additive for Warm Mix asphalt Allows asphalt mixing below 140 °C</p>	<b>2022</b>
		
 <b>SB1</b>	<p>Specific additive for bagged long lasting asphalt Allows 36 moth storage before paving at outdoor T<sup>a</sup></p>	<b>2002</b>
 <b>SB2</b>	<p>Specific additive for bulk long lasting asphalt Allows 6 moth storage before paving at outdoor T<sup>a</sup></p>	<b>2002</b>

# WHERE BioRoad? :

## Types of BioRoad



- Specific additive 100% RAP cold recycling in plant
- New product for enhancing RAP recycling

 Warm or Cold mixing process  
100% fresado

 Easy paving

 Long lasting mix (6 weeks)

BioRoad  
Lazaro  
2-3%  
by RAP weight.



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# WHY BioRoad? : It Works!!



## Project Details:

Madrid (Tecnofirmes asphalt plant)

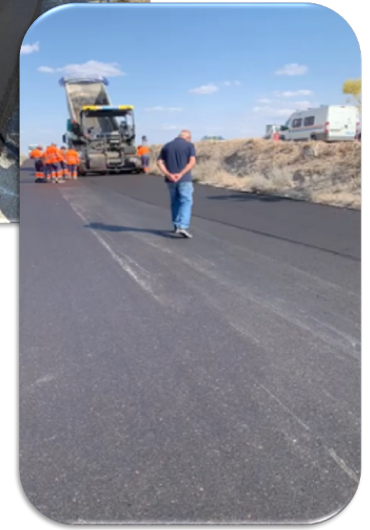
130 tons of asphalt

100% RAP 0/16 mm.

with BioRoad Lázaro.

- 2,5% by weight
- 3,5% by weight

Extended and compacted on june2023.



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# WHY BioRoad? : It Works!!



## Project Details:

Madrid (Tecnofirmes asphalt plant)

130 tons of asphalt

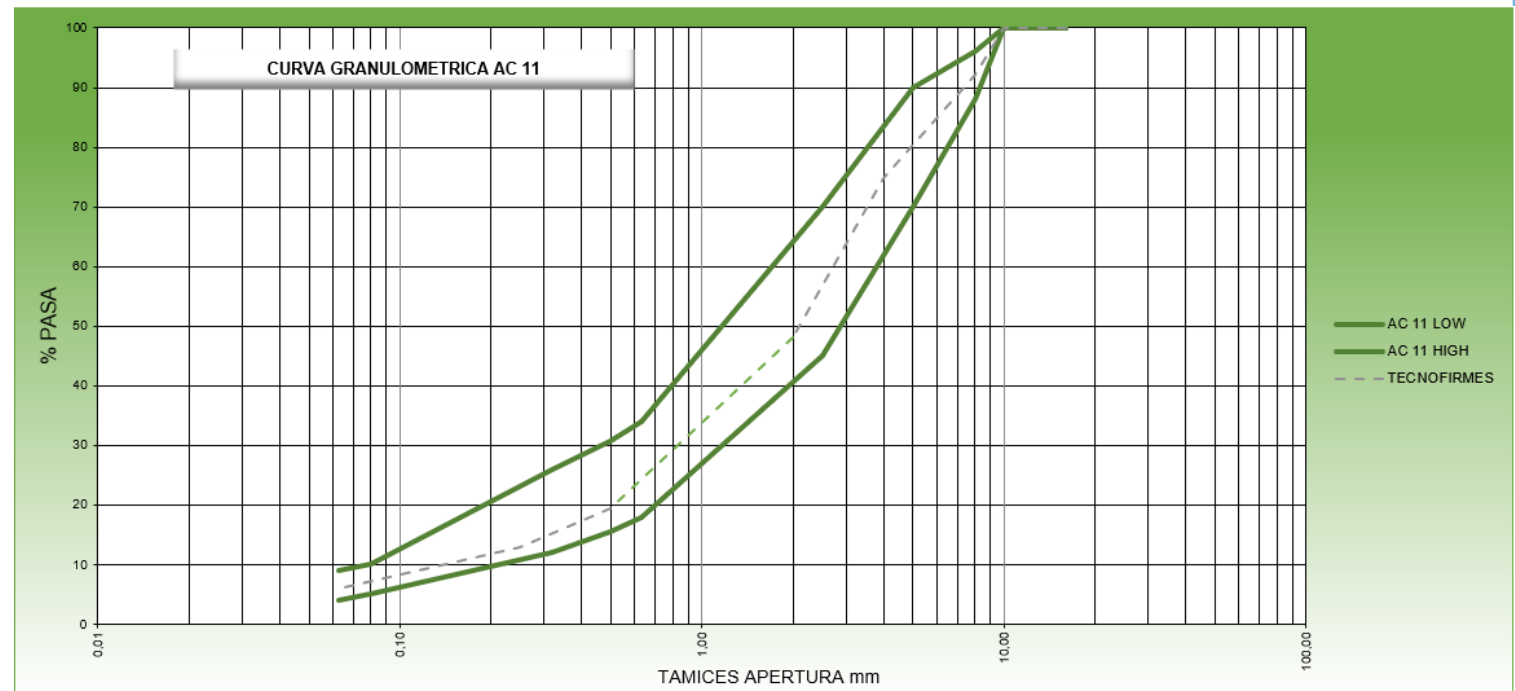
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with BioRoad LázarO.

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Extended and compacted on june2023.



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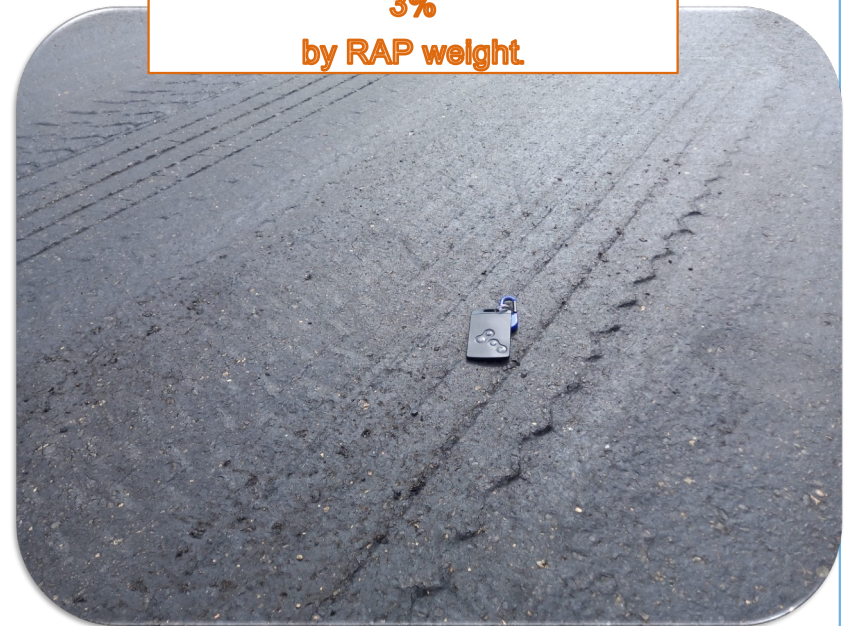
# WHY BioRoad? : It Works!!



BioRoad Lazaro  
2,5%  
by RAP weight



BioRoad Lazaro  
3%  
by RAP weight



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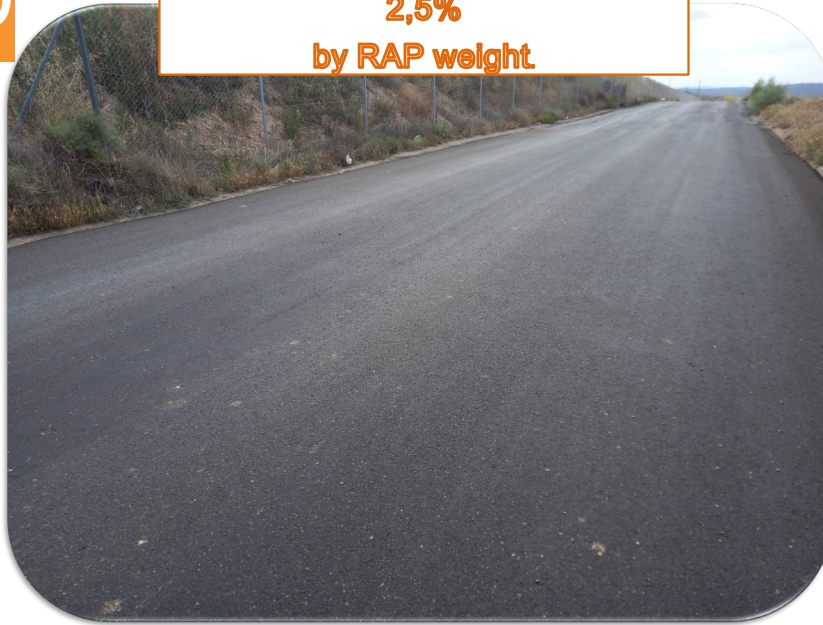
Extend.& compact. on june2023.

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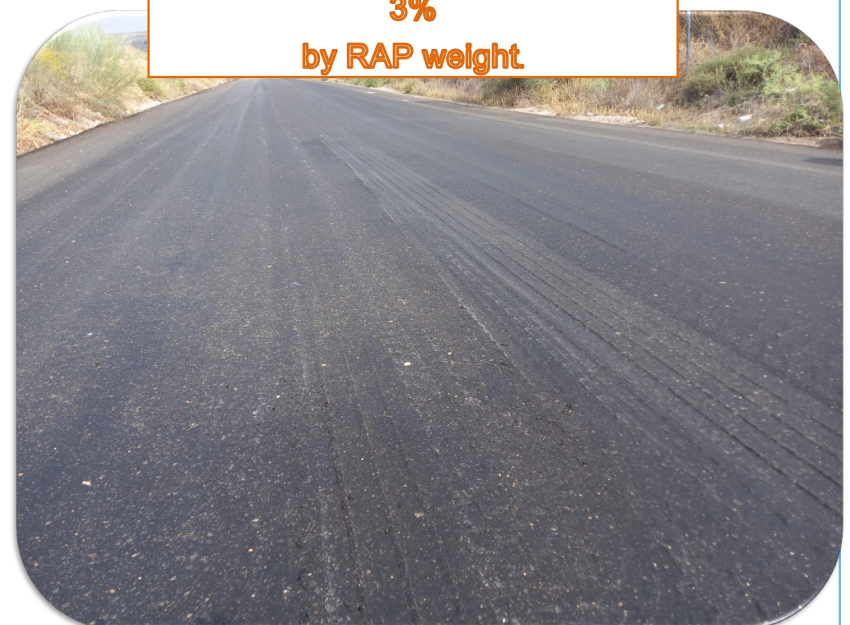
# WHY BioRoad? : It Works!!



BioRoad Lazaro  
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#ICA4point0

# WHY BioRoad? : It Works!!



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130 tons of asphalt

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Extended and compacted on june2023.

UNE-41.215			
Sensibilidad al agua MBRF 25°C velocidad rotura=50 mm/min.			
Cw >= 2,0 kPa (T1-T2) Cw >= 1,5 kPa (T3-T4)	Compresión simple Resistencia en húmedo	Art. 20 PG-4	
i/C (%) >= 75 (T2-T1) i/C (%) >= 70 (T3-T4)	Resistencia conservada	Art. 20 PG-4	

**cemosa**  
Ingeniería y Contratos

Expediente: 0/2305362/1/01  
Nº acta: 017-23/008976/2 Anula a: 017-23/008976/1  
Código de muestra: 1201/017/2023/007696(1493360)

Pol. Ind. Los Olivos C/ Innovación 11  
28906 GETAFE  
TEL. 91 6828727  
FAX. 91 6019683  
URL: www.cemosa.es  
E-MAIL: madrid@cemosa.es  
**ACTA**  
LABORATORIO DE ENSAYOS PARA EL CONTROL DE CALIDAD DE LA EDIFICACION SEGUN RD 410/2015

### INMERSIÓN Y COMPRESIÓN

GRUPO		PROBETAS NO SUMERGIDAS	PROBETAS SUMERGIDAS
Resistencia	KPa	1,84	1,59
Resistencia	Kp/cm2	0,018	0,016

INDICE DE RESISTENCIA CONSERVADA (%)	86
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### OBSERVACIONES:

Fdo. JOSE SERRANO CORDOBA  
Director Técnico de Laboratorio  
Ldo. en Geología

Madrid a 06/07/2023

Fdo. LIDIA FOLGADO FERNANDEZ  
Responsable de Ensayos Físicos  
Ldo. en Geología

SERRANO CORDOBA JOSE -  
30829065A

Digitally signed by SERRANO CORDOBA JOSE - 30829065A  
DN: cn=SERRANO CORDOBA JOSE - 30829065A, o=INGENIERIA Y CONTRATOS CEMOSA, email=serranoc@cemosa.es, c=ES  
Reason: I am the issuer and integrity of this document  
Date: 2023.07.06 15:53:00 +02:00

FOLGADO FERNANDEZ LIDIA -  
08926624W

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DN: cn=FOLGADO FERNANDEZ LIDIA - 08926624W, o=INGENIERIA Y CONTRATOS CEMOSA, email=folgado@cemosa.es, c=ES  
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Date: 2023.07.06 15:53:21 +02:00

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# WHY BioRoad & RARX®? : It works!! It helps!!



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# Gratitude to Our Partners in Progress



Special Thanks  
To:



**UTN**·La Plata

**cemosa**  
Ingeniería y Control



Progress in new technologies depends on  
the willingness to explore and collaborate



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