

GREENSEAL AR

Ref.Catalog AR3037

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USE

TRIFUNCTIONAL ADDITIVE FOR BITUMINOUS BINDERS

APPLICATIONS

INCREASING BITUMEN ADHESIVITY AND COHESION OF ASPHALT.

BINDER FOR RESTORING AND IMPROVING REPAVED- AND RECYCLING
ASPHALT

CONFECTION OF LOW TEMPERATURE RECYCLING ASPHALT at
 $\leq 250^{\circ}\text{F} / 125^{\circ}\text{C}$

SPECIFICATIONS

Characteristics	Méthods	Units	Typiscal values
Viscosity at 75°F/25°C	EN 13072-2	m.Pa.s	60
Specific gravity at 60°F/15°C	DIN 51757	g/cm ³	0,93
Flashpoint	EN-ISO 22719	°F/°C	355/ 180
Values			Minimum
Saponification- (IS)	ASTM D803-15	mg KOH/g	120
Acid- (IA)	ISO 1242	mg KOH/g	50
Iodine- (II)	NF EN ISO 3961	gl ₂ /100g	100
IRe	Σ IS + IA + II	ppm	1170000
Fatty acids an their esters		%	99

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DOSAGES

used as an **ADHESIVE**

Greenseal AR added to binder

0,15 – 0,3 % relative to the binder amount in asphalt

used as **RESTORING and IMPROVING** additive

repaved asphalt	fresh asphalt
Q = < 50 %	Q = > 50 %
both asphalts in mixing drum	
Greenseal AR added to bitumen of the fresh asphalt	
0,8 – 1,0 % relative to the binder amount of the recycling asphalt	
confection of low temperature recycling asphalt <=250°F / 125°C	

repaved asphalt	fresh asphalt
Q = > 60 %	Q = < 40 %
Greenseal AR in parallel mixing drum	Greenseal AR in mixing drum
0,8 – 1,0 % relative to the binder amount	0,2 – 0,4 % relative to the binder amount
confection of low temperature recycling asphalt <=250°F / 125°C	

REACTIVITY

GREENSEAL AR, liquid at ambient temperature and composed by light and heavy distillates of fatty acids and their esters.

The table below takes over the radicals

IA = carbonacids « R- COOH » ,

II = double binding « R>C=C<R » and

IS = esterified fatty acids « R – COOR » : they are the measurable parameters fixing the potential **reactivity power** of **GREENSEAL AR - IRe = 1170000 ppm.**

IA	IS	II	IRe/ ppm
>120 mgKOH/g	50 mgKOH/g	100 gl2/100g	1170000
ISO 1242	ASTM D803-15	NF EN ISO 3961	Σ IA+IS+II

This reactivity power restores and enhances qualitatively the part « used bitume of the repaved asphalt and the bitumen of the fresh asphalt by improving their **polarity** and consequently a higher **wetting** and **dispersion** of the binders.

They assign **GREENSEAL AR adhesive** properties to the mineral aggregates and **cohesion** to the asphalt..

The fluidifying property of **GREENSEAL AR** decreases the viscosity of the binders at lower temperature and the accumulation of the restored properties of the repaved fresh asphalt obtained by his reactivity power contributes to the **preparation at <=250°F/ 125°C** of low temperature recycling asphalt with > 60 % repaved asphalt.

Good mechanical performances depend on the quality and quantity repaved asphalt and those of the fresh asphalt used into the recycling asphalt.

A preliminary study of a formule with all the available products is suggested..

MULTIRECYCLING : The high reactivity power of **GREENSEAL AR** allows **MULTI-PURPOSE RECYCLING** by reusing recycling asphalt as repaved asphalt.

INFORMATION

ENVIRONMENTAL : **GREENSEAL AR** by producing low temperature recycling asphalt is fully favorable for the environment with convenient **carbonfootprint** for the plant and **life cycle analyses** for the asphalt.

TOXICOLOGY : **GREENSEAL AR** free of dangerous and harmful materials and allowing the production of low temperature asphalt, does not release « blue smoke », favourable for the highway workers, environment, fauna and flora.

CERTIFICATIONS : **GREENSEAL AR** is made in accordance with ISO 9001 norm in a workshop certified ISO 14001 and their present substances are « REACH » registered by the producers..

HISTORY : **GREENSEAL AR** developed and produced by GREENWORLD s.à.r.l., is since September 2016 exclusively commercialized by MECAROUTE s.à.. Prior to that period two preparations were used for the same goal : GREENSEL A (ref A30) and GREENSEAL R (ref.R37) respectively used in August 2014 as adhesive and in September 2014 as rejuvenator for repaved asphalt.

PACKAGING : IBC = 900 kg or in bulk by min.18 t.