



**GREENFLUX**  
Purity and  
performance:  
the winning combination  
for **bitumen fluxes**



**TotalEnergies**



## GREENFLUX : an exceptional range

A range of fluxes specifically developed to reduce bitumen viscosity.

### RECOGNIZED TECHNICAL PERFORMANCE:

- ✓ facilitates the emulsification and fluxing of pure bitumen,
- ✓ improves binder yields,
- ✓ guarantees better holding to enable an early return of traffic,
- ✓ shows increased resistance to stripping due to its excellent level of adhesiveness,
- ✓ exceptional water resistance, handling and durability.

## Applications for bitumen

SURFACE DRESSING

COLD MIX ASPHALT

COLD POUR ASPHALT

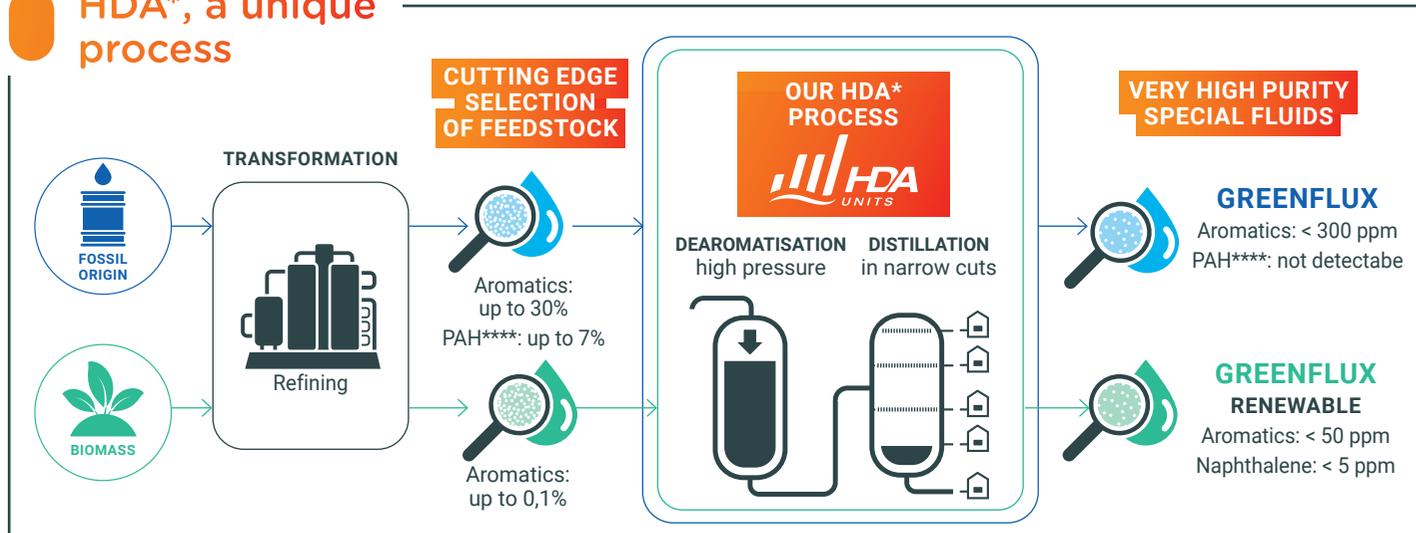
STORABLE COLD ASPHALT

## Fluids of very high purity

Due to our unique hydrogenation and high-pressure distillation (HDA\*) technique, we can offer the purest dearomatized fluxes on the market while meeting the most stringent requirements:

- ▶ Substances not classified as CMR\*\*, in accordance with regulation GHS/CLP (CE) 1272/2008
- ▶ Very low BTEX\*\*\* content (<1 mg/kg)
- ▶ Very low PAH\*\*\*\* content (<1 mg/kg), well below the limit of <1 mg/kg for each
- ▶ Made from substances classified as being readily biodegradable (OECD 301B)
- ▶ Responds to exposure limit values
- ▶ Toxicology compliant with industry requirements

## HDA\*, a unique process



\*HDA: HydroDeAromatisation / \*\*CMR: Carcinogenic, Mutagenic, Reprotoxic / \*\*\*BTEX: Benzene, Toluene, Ethylbenzene, Xylene / \*\*\*\*PAH: Polycyclic Aromatic Hydrocarbons

The Special Fluids division of TotalEnergies: A global network with a local touch

A RECOGNISED GLOBAL LEADER

HEALTH AND SAFETY ARE THE CORNERSTONES OF OUR PROCESSES



Storage facilities **WORLDWIDE**



MULTI-SKILLED TEAMS of passionate, seasoned specialists

A WIDE SELECTION OF PRODUCTS FOR VARIOUS INDUSTRIAL APPLICATIONS



PLANTS in France and the US



**3** LEADING-EDGE R&D CENTRES two in France, one in Belgium, and a technical centre in India



## A solution that complies with the strictest EHS standards

Beyond its very high purity, the **GREENFLUX range complies with the recommendations and safety directives from SETRA** (road and highway technical studies department, May 2011) for risk-free use.

“ We have now been working with **GREENFLUX SD** for more than 10 years. The factors behind this choice are technical in nature. **GREENFLUX SD** is perfectly suited to our applications. It is easy-to-use, and the bitumen can be applied quickly. Today, thanks to **TotalEnergies'** logistics arrangements, we can manage our projects in their entirety. With its HDA process, **TotalEnergies Fluids** supplies an aroma-free binder that is safe for our operators to use. This was a crucial factor in our choice – compliance with **HSEQ standards is a priority at EUROVIA.** ”

Philippe Astier, head of the LNE (North-East Binders) sector, Eurovia

## A responsible offer

As part of our commitment to sustainable development, we have developed an ISCC PLUS certified responsible offer which ensures you are using products that contribute to the reduction of your carbon footprint.

To find out more, go to:  
<https://specialfluids.totalenergies.com/en/iscc-plus-certificate>.



Set up by the European Union, ISCC is a certification body that ensures compliance with environmental criteria, labor law, etc. It ensures traceability of raw materials throughout the supply chain.

Your operators can use our range in complete safety.



# GREENFLUX: Don't compromise between safety and performance

## » UNIQUE PROPERTIES THAT REDUCE YOUR EHS IMPACT

- ✓ Low aromatics content
- ✓ Not carcinogenic, mutagenic or toxic to reproduction (CMR)
- ✓ Odorless
- ✓ Biodegradable
- ✓ Reduce carbon footprint through our responsible offer

## » A HIGH-PERFORMANCE EASY-TO-USE RANGE

- ✓ Allows an early return of traffic
- ✓ Improved resistance to low temperatures and bad weather conditions
- ✓ Improved resistance to aging of the coating

# GREENFLUX

A high performance range suitable for all bitumen applications

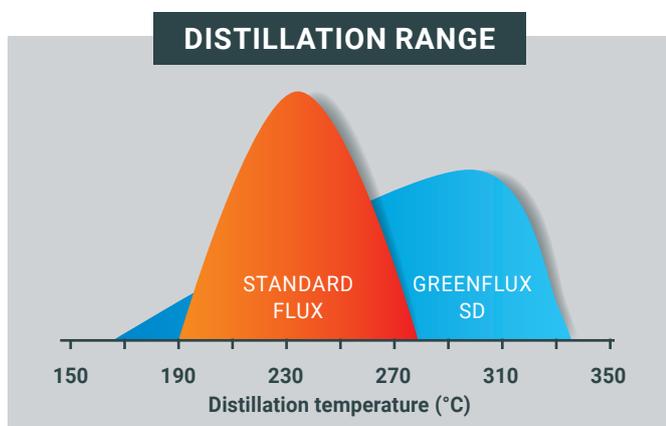
Applications	WEAR SURFACE DRESSING				COLD MIX ASPHALT	COLD POUR ASPHALT	STORABLE COLD ASPHALT
Types of binder	Emulsion		Anhydrous binder		Emulsion		Anhydrous binder
Bitumen	PmB*	Pure bitumen	PmB*	Pure bitumen	Pure bitumen		Pure bitumen
Preferred grade	GREENFLUX SD	GREENFLUX 2000	GREENFLUX SD	GREENFLUX 2000	GREENFLUX 2000		GREENFLUX 3000

## GREENFLUX SD: the ideal solution for polymer modified bitumens

**GREENFLUX SD** guarantees optimum swelling of the plastomers, giving all the necessary elasticity to bitumen coatings based on modified binders. Its specific formulation fluxes and facilitates the emulsification of polymer modified bitumens.

### ENHANCED PERFORMANCE

- ▶ With a lighter fraction than other fluxes, it guarantees better handling than standard fluxes, as well as a rapid rise in cohesion. This allows an early return of traffic and offers better resistance to bad weather conditions.
- ▶ With a heavier fraction than other fluxes on the market, **GREENFLUX SD** offers improved resistance to low temperatures and slows down aging of the coating.
- ▶ **GREENFLUX SD** strengthens binder-aggregate adhesion immediately and over time.



## GREENFLUX 2000: the recommended flux for pure bitumen... and much more besides

**GREENFLUX 2000** facilitates the emulsification and fluxing of pure bitumen. It can also be used for storable cold asphalt and polymer modified bitumens.

### THE PREFERRED CHOICE FOR PURE BITUMEN

- ▶ Due to its physico-chemical characteristics, **GREENFLUX 2000** is considered the industry benchmark.

## GREENFLUX 3000: the optimum choice for storable cold asphalt

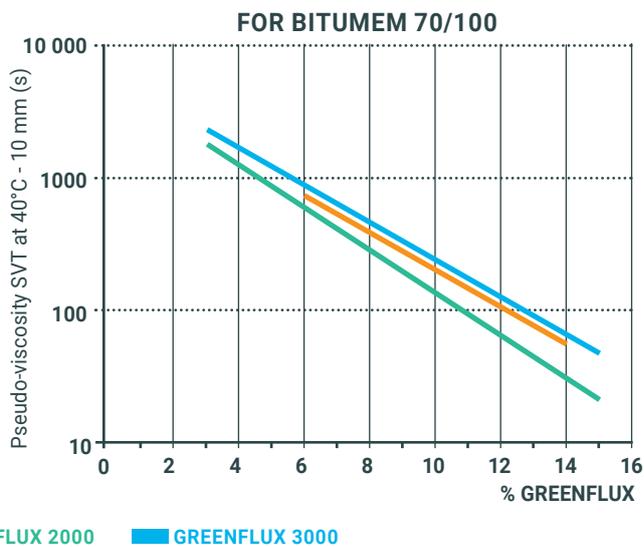
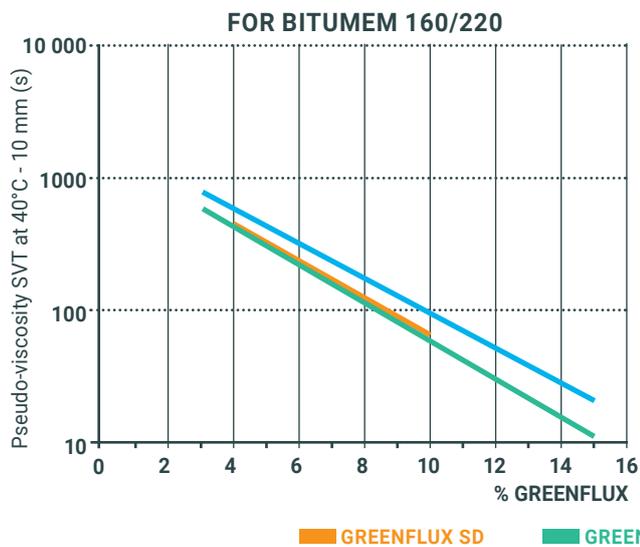
**GREENFLUX 3000** simplifies the use of storable cold asphalt at ambient temperature. Its reduced volatility meets the requirements for this type of asphalt (flash point > 135°C).

### HANDLING AND STRENGTH SUITED TO TRAFFIC

- ▶ Due to a lower viscosity, better handling of the asphalt and low initial evaporation of the solvent, **GREENFLUX 3000** facilitates use of bitumen at ambient temperature.
- ▶ **GREENFLUX 3000** also ensures a good fast rise in cohesion of the asphalt to allow an early return of traffic.

## VISCOSITY CHECK

The percentage of flux to be added depends on the required viscosity



■ GREENFLUX SD   
 ■ GREENFLUX 2000   
 ■ GREENFLUX 3000



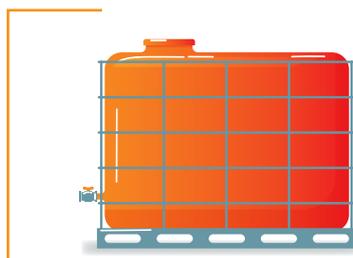
### Operator safety

For **GREENFLUX SD**, the exposure scenario is approved by professional associations such as SFERB (bitumen road emulsion manufacturers' section), member of IBEF (International Bitumen Emulsion Federation). There are no restrictions to the use of the other products in the **GREENFLUX** range.

### Packaging to suit all needs



➔ Bulk, Isotank, Flexitank



➔ 1000 liter IBC



➔ 219 liter drum

[bitumen.totalenergies.com](http://bitumen.totalenergies.com)

TotalEnergiesConstructionSolutions

# GREENFLUX **EU ORIGIN**

## FLUX OILS FOR SURFACE DRESSINGS (ANHYDROUS AND EMULSIONS BINDERS) AND COLD STORABLE MIX APPLICATIONS TYPICAL VALUES

PROPERTIES	UNITS	METHODS	GREENFLUX 2000	GREENFLUX SD	GREENFLUX 3000
DENSITY AT 15°C (59°F)	kg/m <sup>3</sup>	ISO 12185	819	826	817
SAYBOLT COLOR	Unit color Saybolt	ASTM D156	30	30	30
BOILING RANGE: INITIAL POINT	°C (°F)	ASTM D86	198 (388)	172 (342)	279 (534)
10%			208 (406)	199 (390)	287 (549)
50%			216 (421)	277 (531)	294 (561)
90%			227 (441)	298 (568)	309 (588)
FINAL POINT			236 (457)	316 (601)	322 (612)
FLASH POINT	°C (°F)	ASTM D93	75 (167)	69 (156)	138 (280)
AROMATIC CONTENT	mg/kg (ppm)	UV Internal method	<100	-	<100
AROMATIC CONTENT	% weight	EN 12916	-	19	-
BENZENE CONTENT	mg/kg (ppm)	ASTM D6229	<1	<1	<1
SULPHUR CONTENT	mg/kg (ppm)	ASTM D5453	<1	<1	<1
WATER CONTENT (KARL FISHER)	mg/kg (ppm)	ASTM D6304	<100	<100	<100
ANILINE POINT	°C (°F)	ASTM D611	69 (165)	72 (162)	92 (198)
KINEMATIC VISCOSITY: AT 20°C (68°F)	mm <sup>2</sup> /s	ASTM D445	2.4	3.5	7.3
DYNAMIC VISCOSITY: AT 20°C (68°F)	cP	Calculated	1.9	3.1	5.9

READILY BIODEGRADABLE ACCORDING TO 301B OECD GUIDELINE	X	X	X
VOC* EMISSIONS < STANDARD FLUIDS	-	X	-
NOT VOC* CLASSIFIED	-	-	X

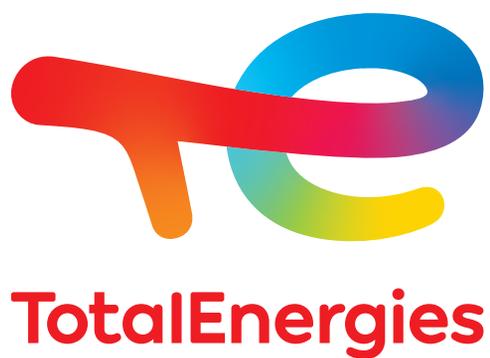
\*Volatile Organic Compound

CARBON CHAIN LENGTH HSPA	C11-C14	mixture	C15-C20
C.A.S. NUMBER	64742-47-8 (R)	64742-46-7 / 64742-95-6	64742-46-7 (R)
EC NUMBER	926-141-6	934-956-3 / 918-668-5	934-956-3

Data provided in this table is issued in good faith to the best of our knowledge, but no warranty, expressed or implied is given.  
R: Related C.A.S. number.



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 [TotalEnergiesConstructionSolutions](https://www.linkedin.com/company/TotalEnergiesConstructionSolutions)

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Share capital € 324 158 696  
542 034 921 RCS Nanterre