

Biobased Oils

High-Performance Biobased Oils for Fertilizer Coatings

SYLVASOLV™ oils are 100% biobased and are used in various fertilizer coating applications to control dust and provide anti-caking properties during handling, transportation, storage, and use. These bio-oils are liquid at room temperature, making them suitable for spraying and use without the need to heat. They are found to be suitable replacements for petroleum-based materials and vegetable-based oils used today in fertilizer coatings. SYLVASOLV bio-oils are hydrocarbons and structurally similar to mineral oils, providing improved oxidative stability and good hydrolytic stability compared to vegetable-based oils. Additionally, they may provide longer-term stability and good water repellency, reducing water uptake, usage, and the need for additional coatings. Further, their excellent solvency power provides improved optionality in formulating, allowing for lower viscosity and safer handling due to their low-temperature properties.

SYLVASOLV oils are derived from crude tall oil (CTO), a pine wood pulping by-product, from responsibly managed forests. These bio-oils provide formulators with a 100% biobased, lower carbon footprint, no land use change, and non-food sourced oil option for fertilizer coatings. Additionally, SYLVASOLV oils are nonflammable with minimal VOC (CARB LVPVOC classified).

Applications:

- » MAP, DAP and other phosphatic fertilizers
- » Nitrogenous fertilizers
- » Potassic fertilizers

Sustainability Advantages:

- » 100% Biobased ¹
- » Sourced from responsibly managed forests
- » Lower carbon footprint ²
- » Non-food source
- » Does not compete for land with food crops

Performance and Property Benefits:

- » Sprayable at room temperature
- » Excellent dust control and anti-cake performance
- » Exceptional solvency power
- » Good oxidative and hydrolytic stability
- » Non-flammable ³
- » Minimal VOC (CARB LVP-VOC classified) ⁴

¹ Provisional biobased carbon content based on radiocarbon C14 test by USDA certified lab, according to USDA BioPreferred® program

² Product specific biogenic carbon credit depends on process, composition and local energy source. The actual life cycle performance improvement that is achieved through the use of Kraton products can only be concluded through an ISO-certified process.

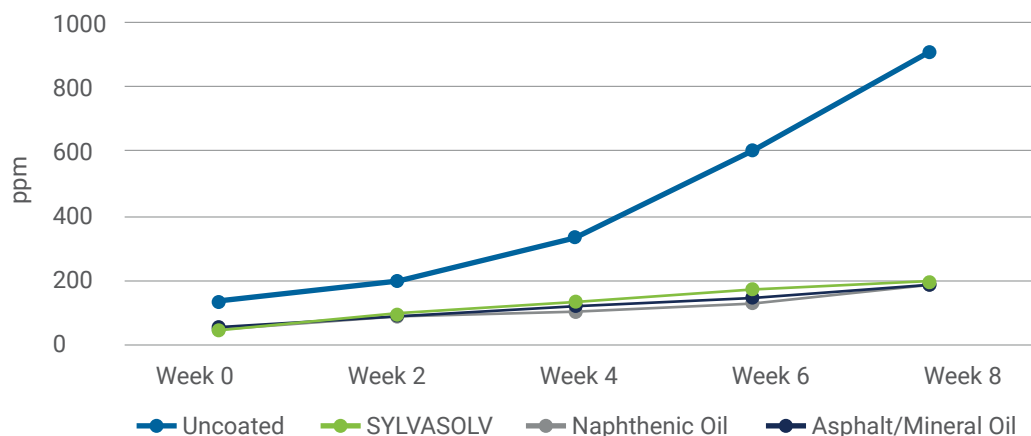
³ According to GHS criteria: flash point >93°C (199.4°F)

⁴ The boiling point distribution of the product was assessed by SIM-Dist analysis performed according to EN-15199-2 and ASTM D2887 to classify low VOC based on EU Directive 2004/42/EC and CARB LVP-VOC.

SYLVASOLV Biobased Oil Physical Properties

Property	Method	1000 Series	3000 Series	Unit
Kinematic Viscosity (40°C)	ASTM D-445	45	22	cSt
Density at 20°C	ASTM D-1480	0.97	0.96	g/cm ³
Color	AQCM 002	12	2	Gardner
Acid Value	AQCM 001	8	3	mg KOH/g
Flash Point (COC)	ASTM D-92	145	142	°C
Pour Point	ASTM D-97	-14	-24	°C
Aniline Point	ASTM D-611	13	13	°C
KB Value	ASTM D-1133		58	

Dust Level Generation over Time for MAP Phosphate Fertilizer Coated with SYLVASOLV Bio-Oil vs Petroleum-based Oils



Phosphate fertilizers were coated with various dust control agents at 0.2% by weight and tested for dust generation over time. Testing showed that fertilizer coated with SYLVASOLV bio-oil generated approximately 75% less dust than the control with no coating and performed comparably well to petroleum-based coatings over an 8-week period.

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