



TUFFTREK 4008

Renewable Oil Technology

Renewable oil technology from Bakelite Synthetics can meet the needs for asphalt modification responsibly and economically.

TUFFTREK 4008 is modifier technology designed to address customer requirements:

- Low odor formulation.
- High flashpoint -577°F (Open Cup).
- Compatibility with amine-based anti-strip.

Advantage: TUFFTREK 4008

	TUFFTREK 4008	Aromatic Oil	Base Oil
PG Grade Reduction	Low dosage required to reduce PG	Nearly 3x additional modifier required to achieve same low PG reduction	Nearly 15% additional modifier required to achieve same low PG reduction
40 hr PAV ΔT_c	Greatest improvement on ΔT_c	Moderate improvement on ΔT_c	Detrimental to ΔT_c at higher dosages
HSE	Biobased, renewable. Low odor. Not hazardous to health or the environment.	Non-renewable	Non-renewable

TUFFTREK 4008 shares with TUFFTREK 4002 the ability to:

- Achieve multiple grades with single grade of asphalt.
- Adjust stored/aged asphalt to desired spec.
- Achieve PG improvement with less modifier.
- Achieve higher performance with lower-cost asphalt.
- Limit effects on mass loss.
- Add in-line for ease of incorporation.
- Attain low PG asphalts for some blend stocks.
- Utilize a low toxicity modifier.

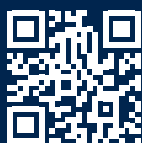
Comparing TUFFTREK 4008 Technology to TUFFTREK 4002

Modification of PG 64-22 Base Asphalt

	TUFFTREK 4002			TUFFTREK 4008		
% Added to PG 64-22	0%	3	6	0	3	6
Mass Change, %	-0.347	-0.369	-0.444	-0.579	-0.570	-0.535
Δ in high PG per 1% added modifier		-1.9	-1.9		-1.9	-1.9
Δ in intermediate PG per 1% added modifier		-2.0	-1.8		-1.8	-1.6
Δ in low PG-Stiffness per 1% added modifier		-1.6	-1.7		-1.9	-1.7
Δ in low PG-m-value per 1% added modifier		-1.9	-2.0		-1.9	-1.9
20 hr PAV ΔT_c (S-m)	1.3	2.2	3.1	0.4	0.7	1.9
40 hr PAV ΔT_c (S-m)	-1.6	0.0	0.0	-1.2	-1.5	-0.9



Next Generation Synthetics



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