

HYDROLENE PERFORMANCE PRODUCTS

Proven solutions designed specifically to optimize asphalt performance and quality.



HOLLYFRONTIER™
SPECIALTY PRODUCTS
AN HF SINCLAIR BRAND

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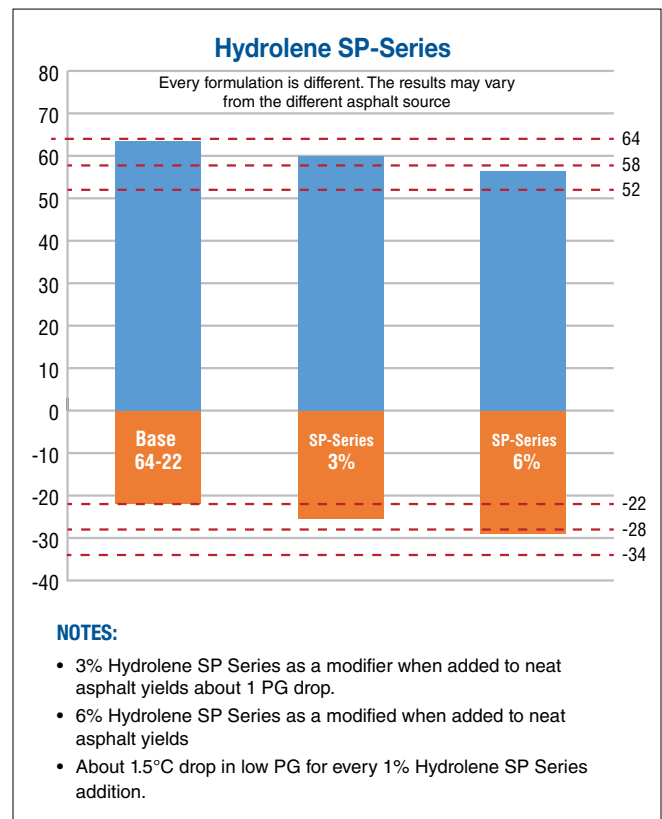
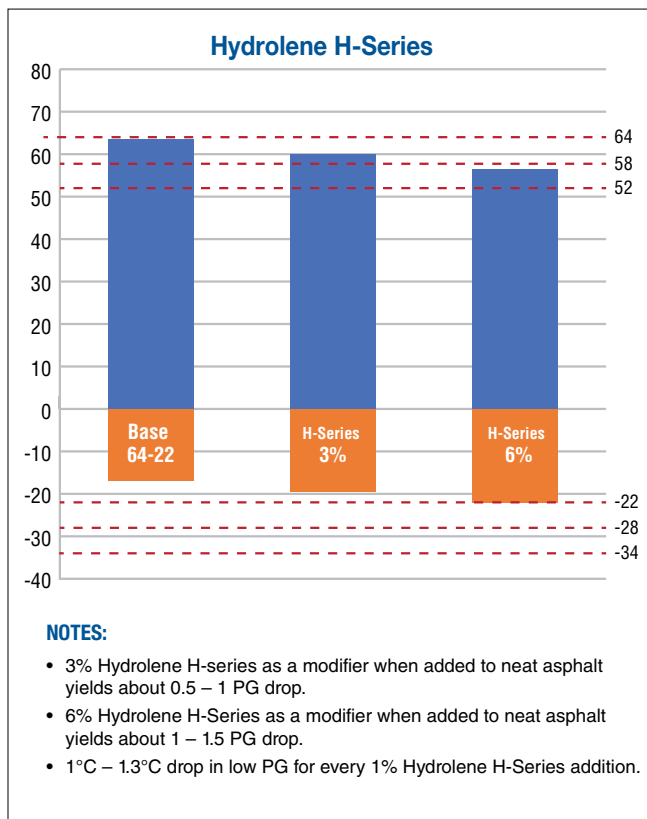
HYDROLENE™ PERFORMANCE PRODUCTS

WHETHER IN HOT-MIX ASPHALT REJUVENATION OR COLD-IN-PLACE RECYCLING, HYDROLENE BREATHES NEW LIFE INTO YOUR ASPHALT APPLICATIONS, AND DOES IT EFFICIENTLY AND ECONOMICALLY. OUR LINE OF HYDROLENE ENHANCEMENT SOLUTIONS, FEATURE VARYING VISCOSITIES, MOLECULAR WEIGHTS, VOLATILITIES, BRITTLE POINTS AND AROMATIC CONTENT, AND ARE DESIGNED TO BE BLENDED FOR MAXIMUM EFFECTIVENESS IN YOUR APPLICATION.

SEE WHAT FEATURES HYDROLENE PERFORMANCE PRODUCTS CAN DELIVER TO YOUR APPLICATION.

MODIFICATION OF PG, USEFUL TEMPERATURE INDEX (UTI) AND DOSAGE EFFICIENCY

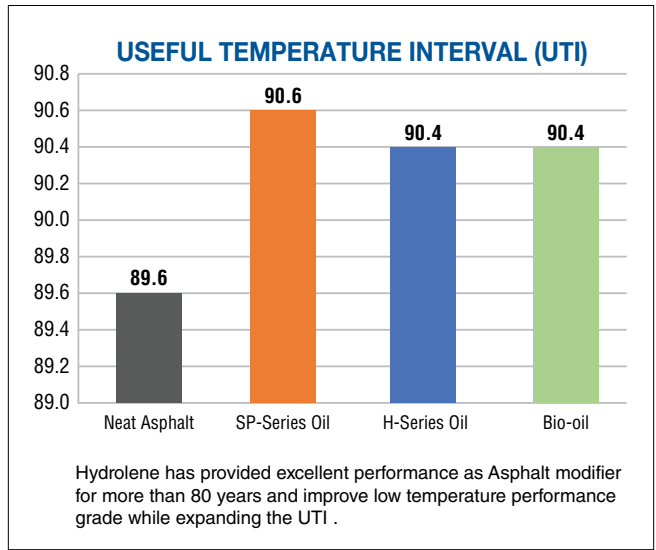
a. Hydrolene SP Series has shown to have comparable dosage efficiency compared to specialty bio-oils and provides superior low temperature properties for asphalt applications.



Hydrolene SP series offers a low aromatic content, allowing for the customization of various low-temperature asphalt grades with a minimal quantity. Additionally, Hydrolene H-Series, characterized by its high aromatic content, enhances the quality of hard-base asphalt when used in asphalt blends. Incorporating Hydrolene in asphalt blends results in reduced asphalt viscosity, improved processability, and an increased UTI of the asphalt binder.

b. Increasing application opportunities

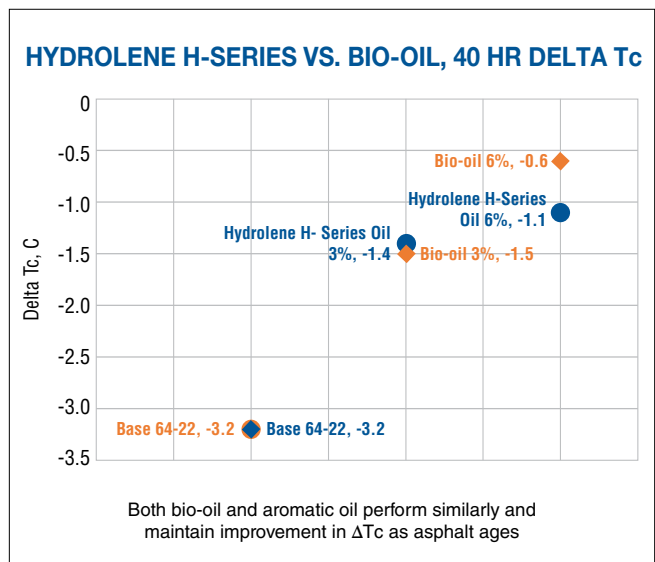
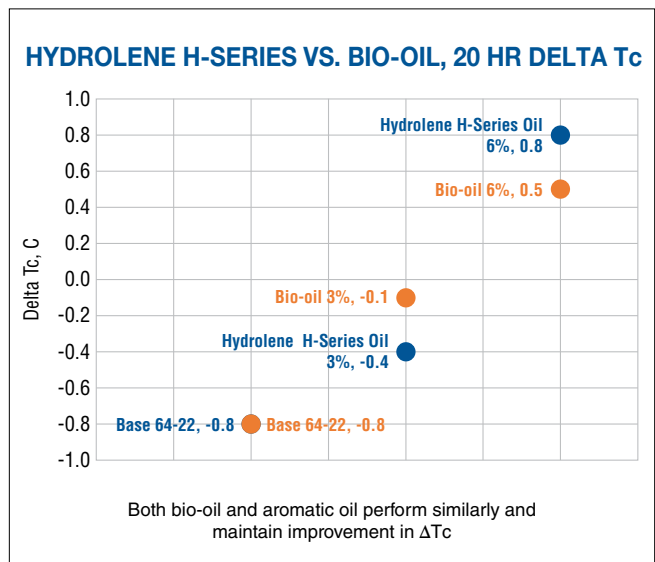
Hydrolene Asphalt Modifiers are effective over wide temperature ranges.



DURABILITY / AGING / RUTTING

- Improves critical cracking temperatures
- Improved fatigue performance
- Hydrolene Asphalt Modifiers have a low impact on short-term and long-term aging even at a low dosage of 3% which means asphalt is less prone to cracking or inflexible
- All oils are tested and meet the requirements per AASHTO M320:

PROPERTY	HYDROLENE H-SERIES TEST METHOD
Rutting parameter, $G^* / \sin(\delta)$	≥ 1 KPa and ≥ 2.2 KPa for RTFO aged
Fatigue parameter, $G^* \times \sin(\delta)$	≤ 5000 KPa
Mass loss	$\leq \pm 1\%$
Creep Stiffness, S	≤ 300 MPa
Creep rate, m-value	≥ 0.3
ΔT_c	$\geq -5^\circ\text{C}$ (more negative with aging)



Hydrolene H-Series results demonstrate ideal characteristics for restoring critical asphalt fractions that improves binder durability and cracking resistance after Delta TC 40 hrs.

PROCESSING / WORKABILITY

- Ease of manufacturing and workability of asphalt mix including polymer modified asphalt.
- Hydrolene decrease viscosity of High Polymer Modified asphalt and neat asphalt that helps to produce more durable roads with better properties for cracking resistance and longevity of the roads.
- High-temperature stability to minimize smoking—maintains high-temperature properties of the asphalt binder
- Asphaltene free to decrease incompatibility with binder and Polymer Modified asphalt
- Hydrolene offers beneficial fluid properties for early compaction and coating, as well as for superior restoration of high-viscosity aged asphalt.



THE ROAD TO BETTER ASPHALT PERFORMANCE

Hydrolene has been shown to provide beneficial results as an asphalt rejuvenator for high RAP Mixtures to improve the low temperature properties of the asphalt binder.

- Hydrolene restores the aromatic resins to high RAP asphalt binders that were lost due to oxidation and aging which helps to prevent softening and rutting issues and improves the longevity of roads.
- Hydrolene has been shown to deliver excellent compatibility with PPA, SBS, warm mix additives and anti-stripping technologies.

**To learn more call 1-800-395-2786
to speak with your HF Sinclair Sales Representative.**

www.hollyfrontierspecialties.com