



# Engineered Additives

## Product Properties & Applications Matrix

Key:  
 Preferred:  
 Recommended:  
 Developmental:



Industry Applications	Hydrogreen® S	Hydrogreen® HFP	BituTech SEF	BituTech WA1	BituTech VPW	ReactiBOND	ReactiLINK	ReactiLINK XP
Green Renewable Chemistry	★	★	★					
Asphalt Paving Applications	★	★	★	★	★	★	★	★
Asphalt Roofing Applications	★	★	★	★	★	★	★	★
Agricultural Applications	★		★					
Tar Sands Applications	★	★	★					
Transportation & Storage Applications	★							
Drilling Fluid Applications	★							
Suitable for Formulation of Explosives	★							
Release Agent Applications			★					
Concrete Form Release Applications			★					
Injection Mold Form Release Applications			★					
Adhesives Applications	★	★						
Polymer Resin Diluent Applications	★	★						
Animal Feed Applications	★		★					
Tank & Vessel Cleaning, e.g. Dissolve and Recover Asphalt Sediment	★							
Crop Adjuvants, non-polluting and hazard-free	★	★	★					
Pesticide & Fungicide Carrier Fluids, non-polluting and hazard-free	★	★	★					
Fruit Sprays, non-polluting and hazard-free	★	★	★					



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<b>Paving Applications</b>	Hydrogreen® S	Hydrogreen® HFP	BituTech SEF	BituTech WA1	BituTech VPW	ReactiBOND	ReactiLINK	ReactiLINK XP
<b>Green Renewable Chemistry,</b> 100% renewable & safe	Preferred	Preferred	Preferred					
<b>Asphalt Viscosity Reduction,</b> 7-9% to change 3000 vis to 600 vis	Preferred	Preferred						
<b>Improve m-Value</b> base binder and mix	Preferred							
<b>Hot-Mix Viscosity Reduction,</b> e.g. Improve Handling and Workability	Recommended	Recommended		Preferred	Preferred			
<b>High-Flash Viscosity Reduction,</b> 7-9% to change 3000 vis to 600 vis		Preferred						
<b>Improve Low Temperature Performance,</b> e.g. PG67-22 to PG58-28	Preferred							
<b>Maintain High Temperature Performance,</b> e.g. PG67-22 to PG64-28				Preferred	Preferred			
<b>High RAP &amp; RAS Binder Recovery,</b> e.g. 98+% Recovery	Recommended							
<b>Triple Foam Half-Life for Water-Foamed Warm-Mix</b>	Preferred		Preferred					
<b>Pavement Preservation</b> e.g. Fog-Seals, Chip-Seals, Sealers			Preferred					
<b>Cold Mix Application,</b> e.g. Activate Old Binder Under Ambient Temps	Recommended		Preferred					
<b>Cold Release Application,</b> dilute to 5%-10% concentration in water			Preferred					
<b>Low Range PG Grade Modifier,</b> e.g. PG67-22 to PG-64-28	Preferred	Recommended						
<b>High Range PG Grade Modifier,</b> e.g. PG67-22 to PG70-22				Recommended	Recommended			
<b>Reduced Polymer Requirement,</b> e.g. up to 50% reduction	Recommended			Recommended	Recommended	Preferred	Preferred	Preferred
<b>Warm Mix Benefits,</b> e.g. Reduce Energy and Extend Laydown Time	Preferred			Preferred	Preferred			
<b>Improved Mix Work-Ability,</b> e.g. extend laydown time	Recommended			Preferred	Preferred			
<b>Elastic Recovery, Toughness &amp; Tenacity</b>	Preferred							
<b>Improve UV Resistance of mix</b> retards aging of the binder	Preferred							
<b>Low-(sulfur)-Fume Cross-linking</b> Environmentally friendly						Preferred	Preferred	Preferred
<b>Non-corrosive &amp; Free Flowing Cross-linker,</b> e.g. no caking in high humidity						Preferred	Preferred	Preferred



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Roofing Applications	Hydrogreen® S	Hydrogreen® HFP	BituTech SEF	BituTech WA1	BituTech VPW	ReactiBOND	ReactiLINK	ReactiLINK XP
<b>Green Renewable Chemistry,</b> 100% renewable & safe	Preferred	Preferred	Preferred					
<b>Asphalt Viscosity Reduction,</b> 7-9% to change 3000 vis to 600 vis	Preferred			Recommended	Recommended			
<b>High-flash Viscosity Reduction,</b> 7-9% to change 3000 vis to 600 vis		Recommended						
<b>Reduced Oxidation Time,</b> e.g. 20-30% Faster Batch Cycle Time								
<b>Oxidize at Lower Temperature,</b> e.g. 50 °F lower								
<b>Post Oxidation Modifier,</b> e.g. 15 Pen @ 220:19 Pen@ 215 with 2%	Preferred							
<b>Oxidize Harder Base Asphalt,</b> e.g. PG64-22 base vs. shingle flux								
<b>Improve Low Temperature Performance,</b> e.g. reduced risk of cracking	Preferred							
<b>Improve High Temperature Performance,</b> e.g. increase stiffness				Preferred	Preferred			
<b>Suitable for BURA, all Types,</b> e.g. PG67-22 to Type III & IV	Recommended							
<b>Modify S.P. &amp; Pen without oxidation</b>								
<b>Elastic Recovery, Toughness &amp; Tenacity</b>	Preferred							
<b>Improved Weathering,</b> e.g. 20-30% Weatherometer Improvement								
<b>Pen &amp; S.P. Modifier,</b> e.g. Changes the Pen & Softening Point Relationship	Preferred			Recommended	Recommended	Recommended	Recommended	Recommended
<b>Reduced Polymer Requirement,</b> e.g. from 15-50% polymer reduction potential	Recommended			Recommended	Recommended	Preferred	Preferred	Preferred
<b>Low temperature processing aid,</b> e.g. Improve workability and handling	Recommended			Preferred				
<b>Low-(sulfur)-Fume Cross-linking</b> environmentally friendly emissions						Preferred	Preferred	Preferred
<b>Non-corrosive &amp; Free Flowing Cross-linker,</b> e.g. no caking in high humidity						Preferred	Preferred	Preferred
<b>Tank &amp; Vessel Cleaning,</b> e.g. Dissolve and Recover Asphalt Sediment	Preferred							



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Specialty Applications	Hydrogreen® S	Hydrogreen® HFP	BituTech SEF	BituTech WA1	BituTech VPW	ReactiBOND	ReactiLINK	ReactiLINK XP
<b>Green Renewable Chemistry,</b> 100% renewable & safe	Preferred	Preferred	Preferred					
<b>Tar Sands Applications</b>								
<b>Efficient Syn Crude Recovery,</b> e.g. ~98% recovery of tars	Preferred	Recommended	Recommended					
<b>Modify Recovered Sand Burden,</b> e.g. re-use for road paving applications	Preferred	Recommended	Recommended					
<b>Modify Bitumen Characteristics in Syn Crude</b>	Preferred	Recommended	Recommended					
<b>Drilling Fluid Applications</b>								
Drilling Fluid Viscosity Modifier	Preferred							
<b>Explosives Formulations</b>	Preferred							
<b>Release Agent Applications</b>								
Release for hot-mix truck bed	Recommended		Preferred					
Release for tar sands truck beds	Recommended		Preferred					
Concrete Form Release	Recommended		Preferred					
Injection Mold Form Release	Recommended		Preferred					
<b>Adhesives Applications</b>								
Extender Oil - Adhesive Formulations	Preferred	Recommended						
<b>Polymer Resin Diluent Applications</b>								
Extender Oil - Polymer Formulations	Preferred	Recommended						
<b>Animal Feed Applications</b>	Recommended		Preferred					
<b>Dust Control</b>	Recommended		Preferred					
<b>Tank, Vessel &amp; Pipe Cleaning,</b> e.g. Dissolve and Recover Asphalt	Preferred	Preferred	Recommended					