

BioRail® HIGH PERFORMANCE RAIL LUBRICANT

BioRail® is first and foremost a high performance rail curve grease. It is also based on oils from vegetable sources that are 100% biodegradable.

In wayside systems BioRail® forms a vertical bead that is easily picked up. It carries through multiple curves and forms a coating on the gage face that is clearly visible for ease of inspection. In many cases the use of BioRail® will result in reduced grease consumption.

BioRail® empties evenly from the holding tank, without slumping down to form a "V". This minimizes pump cavitation. Unlike some vegetable based products, BioRail® will not gel over time. It remains pumpable and does not plug ports.

BioRail® has been extensively tested on Class 1 freight railroads in the United States, which represent the most severely loaded conditions anywhere in the world. Field experience has shown that the carry down, coating of the rail, and level of wear protection are equal to Whitmore's non-biodegradable rail curve greases.

BioRail® has been certified by the USDA as biobased, and has earned USDA BioPreferred designation.

BENEFITS:

- **BIODEGRADABLE** – all grades of BioRail® are classified as "Readily Biodegradable".
- **NO HAZARDOUS COMPONENTS** - the non-oil components are partially biodegradable and non hazardous.
- **NOISE REDUCTION** - especially valuable in urban areas.
- **ADHESIVE AND COHESIVE** - excellent track carry down, reducing the number of wayside lubricators.
- **WIDE TEMPERATURE RANGE** – the need for seasonal product grade changes is eliminated in many areas.

APPLICATIONS:

BioRail® is suitable for lubrication of rail curves where it protects the gage face and wheel flanges. It can also be used in bearings and to lubricate wire ropes, particularly in ecologically sensitive areas.

ASTM #	Grade	TYPICAL CHARACTERISTICS			
		BioRail® All-Season EP 1	BioRail® EP 1	BioRail® EP 1.5	BioRail® EP 2
D-217	Penetration (Worked)	310-340	305-335	285-315	265-295
Gardener Method	Density, lb/gal @ 60°F (15.5°C)	7.72	8.43	8.72	8.72
	Specific Gravity, g/cc @ 60°F (15.5°C)	0.9274	1.0120	1.0470	1.0470
D-2596	Four Ball EP, Weld Point, kg	315	500	500	500
D-2266	Four Ball Wear, Wear Scar, mm	0.40	0.60	0.68	0.68
D-1264	Water Washout, % Loss	Not Tested	2.5	2.0	1.0
	Coefficient of Friction	0.063	0.065	Not Tested	Not Tested
	Ambient Usable Temperature Range, Wayside				
	°F	-20 to 70	-10 to 80	0 to 90	32 to >130
	°C	-29 to 21	-23 to 27	-18 to 32	0 to >54
FTM 321.2	Screen Bleed, %	Not Tested	4.46	4.10	3.14
	MITI Test OECD 301B	Pass	Pass	Pass	Pass

The above are average values. Minor variations which do not affect product performance are to be expected in normal manufacturing.

PACKAGING

Shuttle Tanks	Nonreturnable Totes	Drums	Kegs	Pails w/Liners
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