



TECHNICAL DATA SHEET



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:

- NO MINERAL OIL – the oils used are from vegetable sources and fully biodegradable (100%) under all standard tests for biodegradability.
- 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
D-2265	Dropping Point, °F (°C)	340 (171)	>500 (260)	>500 (260)	>500 (260)
D-445	Base Oil Viscosity cSt @ 40°C cSt @ 100°C	31.0	45.0	118.23	55.6
		6.1	9.9	19.89	12.8
D-2270	Viscosity Index of Base Oil	152	215	238	238
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 °C	-20 to 70	-10 to 80	0 to 90	32 to >130
		-29 to 21	-23 to 27	-18 to 32	0 to >54
	Thickener Type	Calcium	Calcium Sulfonate	Calcium Sulfonate	Calcium Sulfonate
FTM 321.2	Screen Bleed, %	Not Tested	4.46	4.10	3.14
	MITI Test OECD 301C, % biodegradation in 28 days	65 - 69	60 - 65	58 - 62	55 - 61

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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Distributed By:



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LIMITED WARRANTY: The Whitmore Manufacturing Company makes the Limited Express Warranty that at the date of delivery, its goods shall be free from defects in Whitmore's materials and workmanship and shall meet the express written statements of quality, if any, made by Whitmore in connection with the sale of the goods. Other than such Limited Express Warranty, there are no express warranties made with respect to the sale of goods and all implied warranties existing under the law are expressly disclaimed and negated, particularly, Whitmore NEGATES AND DISCLAIMS THE IMPLIED WARRANTY OF MERCHANTABILITY AND THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. All other liability, either in contract or tort, including without limitation, strict liability found in Section 402A of the Restatement of Torts or otherwise, is negated and disclaimed. The sole remedy for Whitmore's breach of such Limited Express Warranty shall be a refund of the purchase price of its goods, and Whitmore shall have no responsibility for incidental or consequential damages sustained as a result of the use of the goods, whether sustained to the goods themselves or to other property. Data listed are subject to usual manufacturing variations.

WHITMORE'S

MATERIAL SAFETY DATA SHEET

I. IDENTIFICATION OF THE CHEMICAL PRODUCT AND COMPANY					
Product Name:	BioRail® <i>(All Grades)</i>	Manufacturer/Supplier: The Whitmore Manufacturing Company 930 Whitmore Drive Rockwall, Texas 75087, U.S.A.			
Chemical Family:	Bio-Semi-Synthetic Blend Lubricant	703-527-3887 (Collect - 24 hr)			
Use:	Rail & Curve Lubricant	Rockwall, Texas 75087, U.S.A.			
Emergency Tel. No.:	CHEMTREC	U.S.A. & Canada	800-424-9300 (24 hrs)	International	703-527-3887 (Collect - 24 hr)
		Australia	00-111-703-527-3887 (Collect - 24 hr)		
II. COMPOSITION INFORMATION ON INGREDIENTS					
<u>Hazardous Components</u>	<u>CAS No.</u>	<u>Wt%</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Other Limits of Exposure</u>
None					
III. ADVERSE HUMAN HEALTH EFFECTS					
Eyes:	Any eye contact will cause irritation.				
Skin:	Prolonged skin contact will cause irritation.				
Inhalation:	Breathing fumes in confined areas at elevated temperatures will cause lung irritation.				
Ingestion:	May be harmful if swallowed.				
IV. FIRST AID MEASURES					
Eyes:	Flush with large amounts of cold water. If irritation persists, SEEK MEDICAL ATTENTION.				
Skin:	Thoroughly wash exposed area with soap and water.				
Inhalation:	Provide fresh air source. If irritation persists, SEEK MEDICAL ATTENTION.				
Ingestion:	Do not induce vomiting. SEEK MEDICAL ATTENTION.				
V. FIRE FIGHTING MEASURES					
Extinguishing Media:	Foam, CO ₂ , Dry Chemical				
Unsuitable Extinguishing Media:	Not Known				
Fire Fighting Protective Equipment:	Treat as an oil fire.				
VI. ACCIDENTAL RELEASE MEASURES					
Personal Precautions:	Wear plastic or neoprene rubber gloves.				
Environmental Precautions:	Do not allow it to enter drains.				
Spillage:	Absorb with dry inert material and shovel up.				
VII. HANDLING AND STORAGE					
Handling:	Keep away from open flame and sparks.				
Storage:	Store in metal containers until disposal.				
VIII. EXPOSURE CONTROL/PERSONAL PROTECTION					
Respiratory Protection:	If product is overheated, use organic NIOSH/MSHA filter-type respirator.				
Hand Protection:	Plastic or Neoprene Rubber				
Eye Protection:	Safety Goggles.				
Body Protection:	None				

HMS SYMBOLS

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Reactivity	0
PPI	B

MSDS-423

Effective Date: 11-25-03

Revised Date: 8-12-09

IX. PHYSICAL AND CHEMICAL PROPERTIES			
Physical State:	Tacky Grease	Color:	Brown
Boiling Range/point, °F (°C):	N/A	Melting Point, °F (°C):	>380 (>193)
Flash Point (COC), °F (°C):	[>400 (>204) (Base Oils)]	Autoignition Temperature, °F (°C):	Not Known
Explosive Properties:	LEL: N/A	UEL: N/A	Evaporation Rate (Butyl Acetate): N/A
Partition Coefficient (Log Pow):	N/A		
Density:	7.80 - 7.95	Flammability:	Not Known
Oxidizing Properties:	Nil	Solubilities in Water:	Nil
		Vapor Density:	N/A
		% Volatiles:	N/A
X. STABILITY AND REACTIVITY			
Stability:	Chemically stable under normal conditions.		
Conditions to Avoid:	Direct flame.		
Materials to Avoid:	Strong inorganic and organic acids and oxidizing agents.		
Decomposition Products:	Oxides of carbon, sulfur, phosphorus, & hydrocarbon.		
XI. TOXICOLOGICAL INFORMATION			
Acute Toxicity:	Not Known	Skin Irritancy:	Very Mild
Chronic Toxicity:	Not Known	Skin Sensitization:	Not Known
Sub-acute/Subchronic Toxicity:	Not Known	Genotoxicity:	Not Known
California Prop 65:	No Components Listed	EC Classification (67/548/EEC):	No
Carcinogenicity:	NTP: No	IARC: No	OSHA: No
XII. ECOLOGICAL INFORMATION			
Possible Effects:	Unknown		
Behavior:	Relatively well behaved. Bioaccumulation potential nil.		
Environmental Fate:	Not thought to be toxic to marine or land organisms.		
XIII. WASTE DISPOSAL			
Product Disposal:	Observe all local, state & federal regulations concerning disposal of lubricating grease.		
Container Disposal:	Observe all local, state & federal regulations concerning disposal of lubricating grease.		
XIV. TRANSPORT INFORMATION			
DOT:	Not Regulated	UN No.:	Not Regulated
Air Transport (ICAO/IATA):	Not Regulated		
Sea Transport (IMO/IMDG):	Not Regulated		
Road and Rail Transport (ADR/RID):	Not Regulated		
XV. REGULATORY INFORMATION			
Labeling Information:	N/A	EC Annex 1 Classification:	N/A
R Phrases:	N/A		
S Phrases:	S2 Keep away from children.		
Ozone Depleting Chemicals:	None/Nil	TSCA:	All Components are listed.
WHMIS (Canada):	Not Regulated		
EPA Regulation 40 CFR Part 372 (SARA Section 313):	None		
XVI. OTHER INFORMATION			
None			

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