



Biorestor Asphalt Rejuvenator

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision Date: 04/25/2014

Date of issue: 04/25/2014

Version: 1.0

SECTION 1: IDENTIFICATION

Product Identifier

Product Form: Mixture

Product Name: Biorestor Asphalt Rejuvenator

Intended Use of the Product

For professional use only.

Name, Address, and Telephone of the Responsible Party

Company

BioBased Spray Systems, LLC.

2506 Fair Rd

Sidney, Ohio 45365-7523

+1 (888) 743-7319

Emergency Telephone Number

Emergency number : Chemtrec (800) 424-9300 Outside USA (703) 527-3887

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

Classification (GHS-US)

Flam. Liq. 3 H226

Skin Irrit. 2 H315

Skin Sens. 1 H317

Asp. Tox. 1 H304

Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US)



Signal Word (GHS-US)

: Danger

Hazard Statements (GHS-US)

: H226 - Flammable liquid and vapor
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction

Precautionary Statements (GHS-US)

: P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical, lighting, ventilating equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P261 - Avoid breathing mist, spray, vapors
P264 - Wash hands, forearms, and exposed areas thoroughly after handling
P272 - Contaminated work clothing should not be allowed out of the workplace
P273 - Avoid release to the environment
P280 - Wear eye protection, face protection, protective clothing, protective gloves
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P352 - IF ON SKIN: Wash with plenty of soap and water
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P321 - Specific treatment (see Section 4)
P331 - If swallowed, do NOT induce vomiting

Biorestor Asphalt Rejuvenator

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

P332+P313 - If skin irritation occurs: Get medical advice/attention
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention
P362+P364 - Take off contaminated clothing and wash it before reuse
P370+P378 - In case of fire: Use appropriate media for extinction
P391 - Collect spillage
P403+P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up
P501 - Dispose of contents/container according to local, regional, territorial, provincial national, and international regulations

Other Hazards

Other Hazards Not Contributing to the Classification: Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

Unknown Acute Toxicity (GHS-US) Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Name	Product identifier	% (w/w)	Classification (GHS-US)
D-Limonene	(CAS No) 5989-27-5	75	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Soybean oil, methyl ester	(CAS No) 67784-80-9	20	Not classified
Styrene-butadiene copolymer	(CAS No) 9003-55-8	5	Not classified

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label if possible).

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

Skin Contact: Immediately remove contaminated clothing. Rinse immediately with plenty of water. Obtain medical attention if irritation develops or persists.

Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

Ingestion: Do NOT induce vomiting. Rinse mouth. Immediately call a POISON CENTER or doctor/physician.

Most Important Symptoms and Effects Both Acute and Delayed

General: Causes skin irritation. May cause an allergic skin reaction. May be fatal if swallowed and enters airways.

Inhalation: May cause respiratory irritation.

Skin Contact: Causes skin irritation. May cause an allergic skin reaction.

Eye Contact: May cause eye irritation.

Ingestion: May be fatal if swallowed and enters airways.

Chronic Symptoms: None expected under normal conditions of use.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible).

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Dry chemical, carbon dioxide, water spray, foam, fog.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Flammable liquid and vapor.

Biorestor Asphalt Rejuvenator

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Explosion Hazard: May form flammable/explosive vapor-air mixture.

Reactivity: Flammable liquid and vapor.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Hydrocarbons. Carbon oxides (CO, CO₂). Oxides of citrus terpenes.

Other information: Do not allow run-off from fire fighting to enter drains or water courses.

Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid all eye and skin contact and do not breathe vapor and mist. Use special care to avoid static electric charges. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Do not allow product to spread into the environment.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Ventilate area.

Environmental Precautions

Prevent entry to sewers and public waters. Avoid release to the environment.

Methods and Material for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clear up spills immediately and dispose of waste safely. Collect the residue by means of a non-combustible absorbent material. Use only non-sparking tools. Eliminate all ignition sources.

Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: Handle empty containers with care because residual vapors are flammable. Do not puncture or incinerate container. When heated, material emits irritating fumes. Any proposed use of this product in elevated-temperature processes should be thoroughly evaluated to assure that safe operating conditions are established and maintained.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Store away from direct sunlight or other heat sources. Store away from incompatible materials. Store away from ignition sources.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers.

Specific End Use(s)

For professional use only.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

No Occupational Exposure Limits (OELs) have been established for this product or its chemical components.

Biorestor Asphalt Rejuvenator

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Exposure Controls

Appropriate Engineering Controls: Ensure adequate ventilation, especially in confined areas. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure all national/local regulations are observed. Gas detectors should be used when flammable gases/vapours may be released.

Personal Protective Equipment: Protective goggles. Gloves. Protective clothing. Insufficient ventilation: wear respiratory protection.



Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear chemically resistant protective gloves.

Eye Protection: Chemical goggles or safety glasses.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

Environmental Exposure Controls: Do not allow the product to be released into the environment.

Consumer Exposure Controls: Do not eat, drink or smoke during use

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	: Liquid
Appearance	: Pale yellow
Odor	: Citrus
Odor Threshold	: Not available
pH	: Not available
Relative Evaporation Rate (butylacetate=1)	: Not available
Melting Point	: Not available
Freezing Point	: Not available
Boiling Point	: Not available
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: 2 mm Hg
Relative Vapor Density at 20 °C	: Not available
Relative Density	: 0.881 (Water=1)
Solubility	: Not available
Partition coefficient: n-octanol/water	: Not available
Viscosity	: Not available
Explosion Data – Sensitivity to Mechanical Impact	: Not expected to present an explosion hazard due to mechanical impact.
Explosion Data – Sensitivity to Static Discharge	: Not expected to present an explosion hazard due to static discharge.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Flammable liquid and vapor.

Chemical Stability: May form flammable/explosive vapor-air mixture.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Open flame. Ignition sources. Incompatible materials. Direct sunlight. Extremely high or low temperatures.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers.

Hazardous Decomposition Products: Hydrocarbons. Carbon oxides (CO, CO₂). Oxides of citrus terpenes.

Biorestor Asphalt Rejuvenator

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity: Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Causes skin irritation.

Serious Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: May cause an allergic skin reaction.

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not available

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: May be fatal if swallowed and enters airways.

Symptoms/Injuries After Inhalation: May cause respiratory irritation.

Symptoms/Injuries After Skin Contact: Causes skin irritation. May cause an allergic skin reaction.

Symptoms/Injuries After Eye Contact: May cause eye irritation.

Symptoms/Injuries After Ingestion: May be fatal if swallowed and enters airways.

Chronic Symptoms: None expected under normal conditions of use.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

D-Limonene (5989-27-5)	
LD50 Oral Rat	4400 mg/kg
LD50 Dermal Rabbit	> 5 g/kg

Styrene-butadiene copolymer (9003-55-8)	
IARC Group	3

D-Limonene (5989-27-5)	
IARC Group	3
National Toxicity Program (NTP) Status	Evidence of Carcinogenicity.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

D-Limonene (5989-27-5)	
LC50 Fish 1	0.619 - 0.796 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
LC 50 Fish 2	35 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)

Persistence and Degradability Not available

Bioaccumulative Potential Not available

Mobility in Soil Not available

Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, and international regulations.

Ecology – Waste Materials: Avoid release to the environment.

Biorestor Asphalt Rejuvenator

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name : TERPENE HYDROCARBONS, N.O.S.(d-limonene solution)
Hazard Class : 3
Identification Number : UN2319
Label Codes : 3
Packing Group : III
Marine Pollutant : Marine pollutant
ERG Number : 128



14.2 In Accordance with IMDG

Proper Shipping Name : TERPENE HYDROCARBONS, N.O.S.(d-limonene solution)
Hazard Class : 3
Identification Number : UN2319
Packing Group : III
Label Codes : 3
EmS-No. (Fire) : F-E
EmS-No. (Spillage) : S-D
Marine Pollutant : Marine pollutant



14.3 In Accordance with IATA

Proper Shipping Name : TERPENE HYDROCARBONS, N.O.S. (d-limonene solution)
Packing Group : III
Identification Number : UN2319
Hazard Class : 3
Label Codes : 3
ERG Code (IATA) : 3L
Marine Pollutant : Marine pollutant



14.4 In Accordance with TDG

Proper Shipping Name : TERPENE HYDROCARBONS, N.O.S.(d-limonene solution)
Packing Group : III
Hazard Class : 3
Identification Number : UN2319
Label Codes : 3
Marine Pollutant (TDG) : Marine pollutant



SECTION 15: REGULATORY INFORMATION

US Federal Regulations

Biorestor Asphalt Rejuvenator	
SARA Section 311/312 Hazard Classes	Fire hazard
Styrene-butadiene copolymer (9003-55-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Soybean oil, methyl ester (67784-80-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
D-Limonene (5989-27-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

US State Regulations

Styrene-butadiene copolymer (9003-55-8)
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term



Biorestor Asphalt Rejuvenator

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Soybean oil, methyl ester (67784-80-9)
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
D-Limonene (5989-27-5)
U.S. - Maine - Chemicals of High Concern
U.S. - Minnesota - Chemicals of High Concern
U.S. - Minnesota - Chemicals of High Concern - Persistent Bioaccumulative Toxins
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term

Canadian Regulations

Biorestor Asphalt Rejuvenator	
WHMIS Classification	Class B Division 3 - Combustible Liquid Class D Division 2 Subdivision B - Toxic material causing other toxic effects
 	
Styrene-butadiene copolymer (9003-55-8)	
Listed on the Canadian DSL (Domestic Substances List) inventory.	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria
Soybean oil, methyl ester (67784-80-9)	
Listed on the Canadian DSL (Domestic Substances List) inventory.	
D-Limonene (5989-27-5)	
Listed on the Canadian DSL (Domestic Substances List) inventory.	
Listed on the Canadian Ingredient Disclosure List	
WHMIS Classification	Class B Division 3 - Combustible Liquid Class D Division 2 Subdivision B - Toxic material causing other toxic effects

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision date : 04/25/2014
Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Asp. Tox. 1	Aspiration hazard Category 1
Flam. Liq. 3	Flammable liquids Category 3
Skin Irrit. 2	Skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitization Category 1
H226	Flammable liquid and vapor
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H400	Very toxic to aquatic life
H402	Harmful to aquatic life
H410	Very toxic to aquatic life with long lasting effects

Biorestor Asphalt Rejuvenator

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Party Responsible for the Preparation of This Document

BioBased Spray Systems, LLC.

2506 Fair Rd

Sidney, Ohio 45365-7523

+1 (888) 743-7319

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

North America GHS