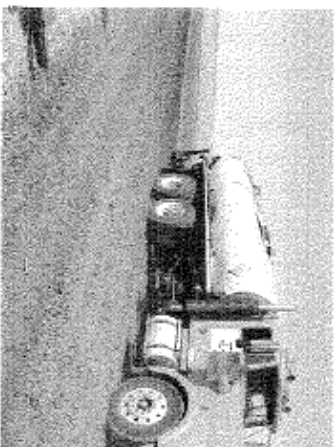


Application Rates and Dilution Ratios
Based on Soil Types

Dustac® Road Binder Table I			
SOIL TYPE	Rate of Application of Concentrate in Gallons/ Square Yard	Rate of Application of Concentrate in Liters/Square Meter	Mix Ratio Units Concentrate to Units of Water
Sandy	0.40	1.81	1.5 : 1
Graded Aggregate	0.35	1.58	1.0 : 1
Sandy Silt or Clay	0.30	1.36	1.0 : 2
Clay	0.28	1.27	1.0 : 5

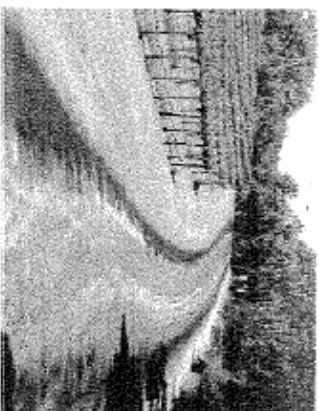


Application Dust Control

The application of Dustac® Road Binder consists of mixing the concentrated product with water in water trucks or special applicator trucks and applying the mixture in multiple applications until the specified application rate of concentrate is achieved. The specified application rates of concentrate are shown in Table I for different soil types. These specifications are variable depending upon duration of use and traffic loading.

LOCAL DISTRIBUTORS

A Natural Solution For Dust Control



Dustac® Road Binder by

Bell Marine Co., Inc.

PO Box 160086

200 28th Street

Sacramento CA 95816

(916) 442-9089

(877) 369-9189

Washington

(360) 733-1449

A Natural Salvation

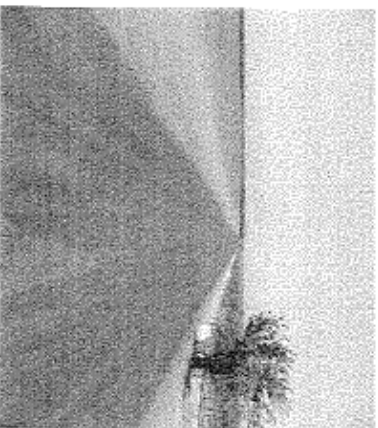
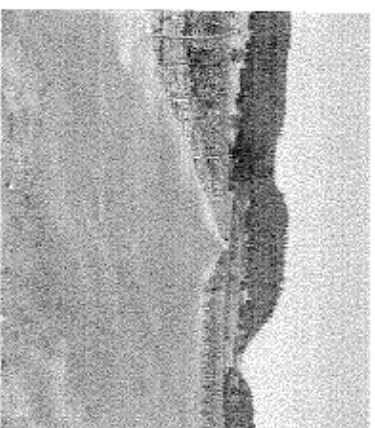
Application Rates and Dilution Ratios Based on Soil

About Our Products

Dustac® Road Binder is a lignosulfonate which is derived from lignin which is nature's glue for binding cellulose fibers to form the rigid structure of trees. Lignin makes up about 25 – 35% of a tree.



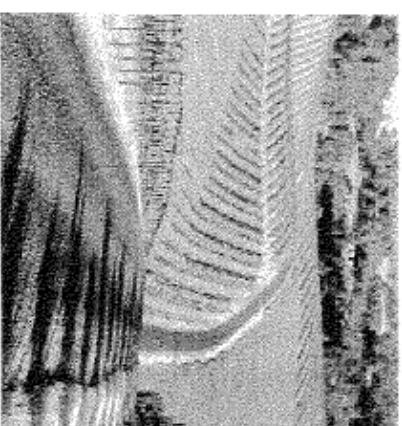
The binding action of lignosulfonates is a well-known characteristic that has found great utility in a variety of applications. Dustac® Road Binder is naturally tacky and exhibit excellent adhesive action on solid particles. This is principally due to the attraction of the lignin molecule to the fine soil particles, in certain instances, the engineering properties of some road bed soils can actually be improved because of the wetting and dispersing characteristics of lignosulfonates. It is a fact the use of lignosulfonates over time develops stronger inferior soils. Many end users have founds that roads im-passable during



Benefits

Applied to any compacted native road bed surface, a water-diluted solution of Dustac® Road Binder can result in several economic benefits such as reduced road repairs, lower road bed material costs and lower equipment use costs. Dustac® Road Binder also will eliminate dust clouds and improve traction.

Dustac® Road Binder is designed for ease of use and efficiency in the suppression of dust in numerous applications. Dustac® Road Binder is easily mixed with water with minimum agitation, and can be applied with nearly any type of spray system.



Environmental Safety

Dustac® Road Binder is biodegradable, non-toxic and non-hazardous. It may be applied around environmentally sensitive areas such as aquifers, lakes, streams, recreational facilities and residential areas. In addition, Dustac® Road Binder is non-corrosive, having a corrosion rate of tap water.

Additional information on this product is available in the Product Information Sheet available from Bell Marine Co., Inc.

About 111* Products

The binding action of

lignosulfonates is a well-known characteristic that has found great utility in a variety of applications. Dustac® Road Binder is naturally tacky and exhibit excellent adhesive on solid particles. This is principally due to the attraction of the lignin molecule to the fine soil particles, in certain instances, the engineering properties of some road bed soils can actually be improved because of the wetting and dispersing characteristics of lignosulfonates. It is a fact the use of lignosulfonates over time develops stronger inferior soils. Many end users have found that roads improve over time.
5,3

Benefits

Applied to any compacted native road bed surface, a water diluted solution of Dustac® Road Binder can result in several economic benefits such as reduced road repairs, lower road bed material costs and lower equipment use costs. Dustac® Road Binder also will eliminate dust clouds and tire ruts.

Dustac® Road Binder is designed for ease of use and in the spray application in numerous applications. Dustac® Road Binder is easily mixed with water with minimum agitation, and can be applied in any type of spray system.

Environmental Safety

Dustac® Road Binder is "biodegradable, nontoxic and non-hazardous. It may be applied around environmentally sensitive areas such as aquifers, lakes, streams, recreational facilities and residential areas. In addition, Dustac® Road Binder is non-corrosive, having a corrosion rate of tap water.

Additional information on this product is

available in the Product Information Bulletin. Marine Quality, Inc.

DUSTAC

DUSTAC® Road Binder is an aqueous lignosulfonate product that has been partially neutralized to raise the pH and minimize corrosivity. This aqueous solution is in a convenient form for transport and storage of large quantities of

lignosulfonates. It disperses readily in cold or hot water to yield a stable, brown-colored solution. Typical viscosities and specific gravity data are shown below.

TYPICAL ANALYSIS

(Based on an "As Is" basis)

Total solids, %	46 ± 3
Lignin sulfonate, %	> 60
Insolubles, ml per 100 ml of product	< 2.5
pH of 10% solution	> 5

TYPICAL PHYSICAL PROPERTIES

Specific gravity (liquid), 25°/15°C	1.24
Gallon weight, lbs	10.3
Gallons / ton	194
Brookfield viscosity, cp at 25°	< 1000

More detailed analyses may be obtained upon request.

*DUSTAC is a registered trademark.

IMPORTANT: The technical data herein is believed to be accurate. It is offered for your consideration, investigation, and verification. Buyer assumes all risk of use, storage, and handling of the product. **NO WARRANTY, EXPRESS OR IMPLIED, IS MADE INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE SPECIFICALLY EXCLUDED.** Nothing contained herein shall be construed as a license to operate under, or recommendation to infringe, any patents.

DUSTAC 46% Spec Sheet

12/05/00

DUSTAC® Road Binder is an aqueous EignosuE- éignosuifonates. ii disperses readiék in coéd

or fionate product that has been partially neutralized with hot water to yield a stable, brown-colored solution is raise the pH and minimize corrosivity. Typical viscosities and specific gravity
This aqueous solution is in a convenient form data are shown below

for transport storage of large quantities of

ANALYSIS

(Based on an "As Is" basis)

Total solids, % 46.13

Lignin sulfonate, % > 60

Enthalpy, Btu per 100 lb of product 2.5

pH solution > 5

Specific gravity (liquid), 25°F/15°C 1.24

Gravimetric weight, lbs 18.3

Gravimetric ton 194

Brookfield viscosity, cp at 25°F 10%

More detailed analyses may be obtained upon request.

*DUSTAC is a registered trademark.

fringe any patents.

Shipping

DUSTAC® lignosulfonate products are manufactured at sulfite pulp mills in the western US and Canada.

DUSTAC® Road Binder liquid is available as a solution in tank cars or tank trucks.

Shipments of lignosulfonates are not regulated as hazardous materials by the Department of Transportation (DOT). The proper shipping name for this product is lignin liquor for the liquid form.

The designation for shipments of lignin liquor is NMFC Item 111270 for tank truck and UFC Item 56790 or STCC Item 2611215 for rail.

In case of emergency contact Bell Marine Co., Inc. at (916) 442-9089.

Storage & Handling

DUSTAC® Road Binder solutions can be stored in mild-steel tanks. It is recommended that storage tanks have some means of agitation. Lignosulfonate solutions should be maintained at temperatures sufficient to provide suitable viscosities. Viscosity and corrosion data on this product are available on request.

Centrifugal pumps should be used to transfer DUSTAC® Road Binder solutions that are maintained at temperatures to provide a flowable product. Positive displacement pumps with low rpm are recommended to meter the product. All pumps should have mechanical seals or lubricated (non-grease) packing.

Lignosulfonate solutions are biodegradable. Contamination by naturally occurring airborne organisms

can occur and cause pressure to develop if the fermenting material is placed in a sealed container.

As with all organic material, caution is advised when storing or handling this product near strong oxidizing or alkaline agents. Addition of strong alkali could result in release of corrosive ammonia gas. Prolonged and excessive heating of DUSTAC® Road Binder solutions can result in decomposition and the release of toxic sulfur dioxide fumes.

The use of appropriate protective clothing, e.g., goggles, rubber gloves, and/or suitable respirator, is recommended when handling DUSTAC® products. In case of skin contact, wash the affected area thoroughly with water. Accidental spills should be hosed down and diluted with water. Disposal should be in accordance with standard industrial waste disposal methods.

For more information on the proper handling of DUSTAC® Road Binder, see the material safety data sheet available from Bell Marine Co., Inc.

Sales & Service

Bell Marine Co., Inc. markets a wide variety of lignosulfonate products. These products are manufactured under rigid controls to insure a finished product of the highest quality.

A team of sales representatives is available for assistance. They are supported by a staff of highly qualified technical specialists who are skilled in the handling and application of lignosulfonates.

For more information, please contact one of the chemical sales offices listed below.

SALES OFFICES

Sacramento, CA 95816
P.O. Box 160088 (95816)
200 - 28th Street

Telephone: 916-442-9089
Cell 916-398-4924
Fax: 916-442-2160

Bellingham, WA 98226
1764 Aquila Court

Telephone: 360-733-1449
Cell 360-201-2353
Fax: 360-733-1449

Bell Marine Co., Inc.

lignosulfonate products are manufactured at pulp mills in the western US and Canada.

DUSTAC® Road Binder Liquid is available as a solution in tank cars or Tank trucks.

Shipments of lignosulfonates are not regulated as hazardous materials by the Department of Transportation (DOT). The proper shipping name for this product is lignin liquor in liquid form.

The designation for shipments of lignin liquor is NMFC item for tank truck and UIC item 56790 or STCC Item 261 0000.

In case of emergency contact Marine Chemical, Inc. at (916) 442-9089.

DUSTAC® Road Binder solutions can be in mild-steel tanks. It is recommended that storage tanks have some means of agitation. Lignosulfonate solutions should be maintained at temperatures sufficient to provide suitable viscosities. Viscosity and sedimentation data on this product are available on request.

Peristaltic pumps should be used to transfer DUSTAC® Road Binder solutions that are maintained at temperatures that provide a flowable product. Positive displacement pumps with low rpm are recommended to meter the product. All pumps should have mechanical seals or lubricated (non-grease) packing.

Lignosulfonates are biodegradable. Contamination by naturally occurring airborne organisms can occur and cause pressure build-up if the fermenting material is placed in a sealed container.

As with all organic materials, caution is advised when storing or handling this product since strong oxidizing or alkaline agents. Addition of strong alkali could result in release of corrosive ammonia gas. Prolonged and excessive heating of Road Binder solutions can result in decomposition and the release of toxic sulfur dioxide fumes.

The use of appropriate protective clothing, e.g., goggles, rubber gloves, and an appropriate respirator, is recommended when handling products. In case of skin contact, wash the area thoroughly with water. Accidental spills should be cleaned up and diluted with water. Do not breathe vapors in connection with standard industrial waste disposal methods.

For more information on the proper handling of DUSTAC® Road Binder, see the material safety data sheet available from Marine Chemical, Inc.

Sales & Service

Marine Chemical, Inc. markets a wide variety of Lignosulfonate products. These products are manufactured under conditions to insure a finished product of the highest quality.

A team of sales representatives is available for assistance. They are supported by a staff of highly qualified technical specialists who are skilled in the handling and application of lignosulfonates.

For more information, please contact us at the chemical sales offices listed below.

SALES OFFICES

Bellingham, WA 98226 1764 Aquila Court

Line 9, Inc.

**BELL MARINE
COMPANY INC.**



MATERIAL SAFETY DATA SHEET

DUSTAC® ROAD BINDER LIQUID

SECTION 1 - PRODUCT IDENTIFICATION

Product Name and Synonyms:

DUSTAC® Road Binder Liquid; Ammonium Lignosulfonates.

Manufacturer's Name and Address

KIMBERLY-CLARK CO.

CAS Name and Number:

Mixture (see Section 10).

Emergency Telephone Number

1-800-424-9300 CHEMTREC

Chemical Family: Lignin.

Chemical Formula: Unknown.

SECTION 2 - HAZARDOUS INGREDIENTS

<u>COMPONENT</u>	<u>% WEIGHT OR VOL</u>	<u>ACGIH TWA UNITS</u>	<u>ACGIH STEL UNITS</u>	<u>OSHA PEL UNITS</u>
None	—	—	—	—

SECTION 3 - PHYSICAL PROPERTIES

Appearance and Odor: Dark brown viscous liquid with slight odor.

Vapor Density (Air = 1): Not known.

Molecular Weight: Unknown.

Percent Volatile (By Weight): Approx. 52% (water).

Boiling Point (Degrees Fahrenheit): Around 212.

pH: Approx. 4 - 7

Freezing Point (Degrees Fahrenheit): Around 25.

Solubility in Water: Soluble.

Vapor Pressure (MM of Mercury): Water (approx. 7-8).

Evaporation Rate (Butyl Acetate = 1): Not known.

Specific Gravity (Water = 1): Approx. 1.25.

SECTION 4 - FIRE AND EXPLOSION DATA

Flash Point: None.

Fire Extinguishing Media: Water or CO₂.

Flammable Limits (Percent by Volume): Lower: Not applicable.

Upper: Not applicable.

Special Firefighting Procedures & Equipment: Normal.

Unusual Fire and Explosion Hazards: None.

SECTION 5 - REACTIVITY DATA

ATERLQL ETY DATA SHET

STAC® RA £5 LEUE

CAS Name Number:

Emergesay Teieghane Number

1-860-424-~93% CHEMTREC

Mixture {see Section 16}.

Chemical Famiégg: Légnin.

Fomwia: Unknown.

SECTION 2 - i-IRDOUSiNGRED§ENTS

SECTION 3 - PHYSEAL FROPERHES

Angearance and Gdoz". Dark brown viseous liquid with siight odor. Vagor Densi§1§Air = 1 5: Not knewn.

Unusuai Fiye am Exgkasion Hazards: None.

SECBON 5 - REACTIVIY ATA

Stability: Unstable ☐ Stable ☒

Conditions to Avoid: Addition of strong alkali could result in release of corrosive ammonia gas

Incompatibility (Materials to Avoid): Strong oxidizers and strong alkali.

Hazardous Decomposition Products: None

Hazardous Polymerization: Will Occur ☐ Will Not Occur ☒

Conditions to Avoid: None known.

SECTION 6 - HEALTH HAZARD INFORMATION

Exposure from Routine Use: None known.

Effects of Overexposure: None known.

Probable Routes of Exposure: Skin, eyes.

Emergency First Aid Procedures

Eye Contact: Rinse immediately with water. Remove contact lenses; flush eyes with water. Consult a physician if necessary.

Skin Contact: Wash skin with soap and water. Seek medical attention if irritation persists. Launder contaminated clothing before re-use.

Inhalation: Move to fresh air.

Ingestion: Rinse mouth. Immediately dilute by drinking large quantities of water. After dilution, induce vomiting. Seek immediate medical attention. Never give anything by mouth to an unconscious person.

SECTION 7 - TOXICITY DATA

Oral: This material is not orally toxic when tested as described in 29 CFR 1910.1200, Appendix A.

Dermal: This material is not a primary irritant and is not dermally toxic when tested as described in 29 CFR 1910.1200, Appendix A.

Inhalation: Not tested as a liquid. Four-hour exposure of rats to 198 mg/m³ of dust has resulted in neither mortality nor observable signs of toxicity.

Carcinogenicity: Not listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Other Pertinent Data: This material is not an eye irritant when tested as described in 29 CFR 1910.1200, Appendix A.

incomg Materials to Avoid): Strcng oxidizers and strong

Hazardous Elecomposition Products: None

Hazardous Poifierization: mm: Occur___ Wili Not Occur X

Conditions to Avoid: None known.

SECTION 6 - HEALTH HAZARD QNFORMATEON

Exgosum from Routine Use: None known.

Efiects of Overexgasure: None known.

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Emegesacg First Aid Procedares

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SECTEON ? - TOXECETY DATA

Orair This maiterieé is not eraily toxic: when 'tested as described in 29 CPR 191 O. 1 200, Appendix A..

Dermat: "Fhie material is not a primary and is not dermeééy toxic when tested as described in 29 CF?

19': 071200, Appendix A..

inhalation: Not tested as a liquid. Four-hozsr exposure of rats to mgima of dust has resulted En rm." observable signs of toxicity.

Carcingenicéig: Not iisired as a carcinogen by IARC, NTP, OSHA, or ACGJH.

O£her Perfinem: Qata: This material is not an eye irritant when tested as described in 29 CPR 19%.? 236, Appendix A.

SECTION 8 - SPECIAL PROTECTION INFORMATION

Personal Protective Equipment

Protective Gloves: Rubber gloves recommended.

Eye Protection: Goggles recommended.

Respiratory Protection (Specify Type): None.

Other Protective Equipment: As appropriate to prevent contact with body.

Ventilation

Local Exhaust: Not normally required.

Mechanical (General): Not normally required.

Special: None.

Other: None.

SECTION 9 - SPILL, LEAK, AND DISPOSAL PROCEDURES

Steps to be Taken in Case Material is Released or Spilled

Wash area with water. Spills or releases of this material do not currently trigger the emergency release reporting requirements under the federal Superfund Amendments and Reauthorization Act of 1986 (SARA). State and local laws may differ from federal law. Consult counsel for further guidance on your responsibilities under these laws.

Waste Disposal Methods: Customary plant procedures for industrial waste treatment.

Clean Water Act Requirements: None known.

Resource Conservation and Recovery Act (RCRA) Requirements: None known.

SECTION 10 - REGULATORY INFORMATION

FDA: Under 21 CFR 573.600, lignin sulfonates are approved for use in animal feeds, either in liquid or powder form, up to 4% of finished feed.

USDA: Not applicable.

CPSC: Not applicable.

TSCA: Mixture: CAS# 8061-52-7, Lignosulfonic Acid, Ammonium Salt; mixture with CAS# 8061-53-8, Lignosulfonic Acid, Ammonium Salt. The calcium lignosulfonates is also listed on the Toxic Substances Control Act inventory as CAS# 68131-32-8, Fermented Spent Sulfite Liquor. Composition varies with availability of calcium- and ammonium-based product.

DOT: Non-regulated.

Proper Shipping Name: None.

Identification No.: None.

Hazard Class: None.

Other Pertinent Information: None.

Label Required: None.

EPA: Superfund Amendments and Reauthorization Act (SARA) Title III: Section 313, Supplier Notification.
Not applicable.

Protective Gloves; Rubber gloves recommended.

Eye Protection: Goggles recommended.

Respiratory: Protection (Specify Type): None.

Other Protective Equipment As appropriate to prevent contact with body.

Ventilation

Local Exhaust: Not normally required.

Mechanical General: Not normally required.

Storage: None.

Other: None.

SECTION 9 - LEAK, AND DISPOSAL PROCEDURE\$

Steps to be taken in Case Material is Released or Spilled

Wash area with water. Spills or releases of this material do not currently trigger the emergency release reporting requirements under the federal Superfund Amendments and Reauthorization Act of 1986. State and local laws may differ from federal law. Consult counsel for further guidance on your responsibilities under these laws.

Waste Disposal Methods: Customary plant procedures for waste treatment

Clean Water Act Reporting: None known.

Resource Conservation and Recovery Act Requirements: None known.

SECTION 8 - REGULATORY INFORMATION

Calcium- and ammonium-based products

DOT: Non-regulated.

PM: Shipping Name: None. Identification No: None.

Hazard: None. Other pertinent information: None.

Label Requirements: None.

SECTION 11 - SPECIAL PRECAUTIONS AND COMMENTS

Precautions to be Taken in Handling and Storing

This material is biodegradable. Use caution when opening unvented containers of water solutions. Microbial activity may cause pressure accumulation.

Other Precautions: None known.

Registrations / Certifications: None.

Effective Date:
12/05/05

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Precautions to be Taken: in Handling and Storage

5153 material is biodegradable. Use caution when opening unvented containers of water solutions. Microbial activity may cause pressure

Effective Date: 2585195

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