

Appendix P

Fugitive Dust Plan

Prepared for:
Bison Pipeline LLC

Fugitive Dust Control Plan

AECOM, Inc.
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Fugitive Dust Control Plan

CONTENTS

1.0	Introduction.....	1
2.0	Regulatory Requirements.....	1
2.1	Wyoming.....	1
2.2	Montana.....	1
2.3	North Dakota.....	2
3.0	Fugitive Dust Sources.....	3
4.0	Best Practical Methods of Fugitive Dust Control.....	3
5.0	Responsible Party.....	6
6.0	Project Contact for Landowners.....	6
7.0	General Contractors.....	6

LIST OF TABLES

Table 4.0-1	- Proposed Water Sources for Dust Abatement Purposes.....	4
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LIST OF ATTACHMENTS

Attachment A Material Safety Data Sheets

Fugitive Dust Control Plan

Significant changes from Bison's Fugitive Dust Control Plan submitted in October 2009, and used for the Final Environmental Impact Statement (EIS) analysis, are identified in the Table below. These changes are highlighted with **bolded text** in the body of this report.

Significant Revisions to Bison's Fugitive Dust Control Plan Since October 2009	
Section	Description of Modifications
4.0	Updated MPs, water sources and volumes in Table 4.0-1
4.0	Added reference to Bison's Spill Prevention, Control, and Countermeasure Plan
4.0	Updated water source volumes in Table 4.0-1
7.0	Added statement that construction contractors will be chosen in Spring 2010
Attachment A	Added this Attachment for Material Safety Data Sheets

1.0 Introduction

The Bison Pipeline Project (the Project) will include approximately 301 miles of new pipeline in Wyoming, Montana, and North Dakota. This Fugitive Dust Control Plan (Plan) provides procedures to minimize fugitive dust during periods of construction. This Plan will be followed during the construction phase of the Project, which is expected to last from May through November of 2010. The dust control methods described herein will be applied as frequently as is necessary in response to landowner requests, safety concerns, and/or construction requirements.

2.0 Regulatory Requirements

Bison proposes to utilize the fugitive dust control measures described in this plan in accordance with the regulatory requirements described below, by state.

2.1 Wyoming

Within the state of Wyoming sources are required to control fugitive dust emissions according to the Wyoming Department of Environmental Quality (WYDEQ) Air Quality Division's (AQD's) Standards and Regulations Chapter 3, Section 2 Paragraph (f).

For fugitive dust resulting from construction activities, the following control measures are approved by the WYDEQ AQD Division Administrator and considered appropriate for minimizing fugitive dust within Wyoming:

- Frequent watering and/or chemical stabilization when engaged in clearing or leveling of land, earthmoving, excavation, or movement of trucks or construction equipment over access haul roads or cleared land.
- Prompt removal of material tracked onto paved streets by water or other means.

For fugitive dust resulting from the handling and transportation of materials, the following control measures are approved by the WYDEQ AQD Division Administrator and considered appropriate for minimizing fugitive dust within Wyoming:

- Application of asphalt, oil, water or suitable chemicals on unpaved roads, material stockpiles and other surfaces which can give rise to airborne dusts when engaged in handling or hauling materials (including soil).
- When transporting materials likely to give rise to airborne dust, open bodied trucks shall be covered when in motion.

2.2 Montana

The Administrative Rules of Montana (ARM) Title 17, Chapter 8, Subchapter 3, Rule 8 - Particulate Matter, Airborne provides that reasonable precautions to control emissions of airborne particulate matter must be taken into consideration when engaged in the production, handling, transportation, or storage of any material (including soils); when using any street, road, or parking

lot; and as part of construction or demolition projects. In such instances, fugitive dust control methods must be implemented such that airborne particulate matter from any source shall not exhibit opacity of 20 percent or greater averaged over six consecutive minutes.

2.3 North Dakota

Fugitive dust emissions are regulated under North Dakota Administrative Code (NDAC) Title 33, Article 15, Chapter 17. This regulation dictates that, “No person shall cause or permit fugitive [dust] emissions from any source whatsoever, including a building, its appurtenances, or a road, to be used, constructed, altered, repaired, or demolished; or activities such as loading, unloading, storing, handling, or transporting of materials without taking reasonable precautions to prevent such emissions from causing air pollution as defined in NDAC Section 33-15-01-04.”

According to North Dakota regulations, reasonable abatement measures for the control of fugitive dust emissions on unpaved roads or parking areas include frequent watering, the use of dust palliatives, detouring, paving, road closure, speed control, and other means such as surface treatment with penetration chemicals (e.g., ligninsulfonates, oil, water, cutbacks).

According to North Dakota regulations, reasonable abatement measures for the control of fugitive dust emissions resulting from demolition or earth-moving activities include:

- Wetting down the construction area, including prewatering;
- Landscaping and replanting with native vegetation;
- Covering, shielding or enclosing the area;
- Paving the area, temporarily or permanently;
- Treating the area with the use of dust palliatives and chemical stabilization;
- Detouring around the area;
- Restricting the speed of vehicles on sites;
- Preventing the deposit of dirt and mud on improved streets and roads;
- Minimizing topsoil disturbance and initiating reclamation activities as soon as possible;
- Sequential blasting whenever or wherever feasible to reduce the amounts of particulate matter released;
- Surface compaction and sealing;
- Washing or wetting down, treating, or covering hauling equipment when necessary to minimize the amount of dust becoming airborne in transit and loading; and
- Treating or containing stockpiled materials to prevent blowing.

3.0 Fugitive Dust Sources

Fugitive dust could be generated directly from pipeline installation and aboveground facility construction. The following construction activities have been identified as having the potential for generating fugitive dust:

- vehicle and motorized equipment movement on paved and unpaved access roads;
- vegetation removal;
- clearing and grading;
- topsoil removal;
- cutting and filling;
- trenching;
- backfilling;
- blasting;
- track-outs onto roads;
- bulk material loading, hauling and unloading;
- use of material storage piles; and
- use of parking, staging, and storage areas.

It is the responsibility of the Project Contractor(s) and Bison's Environmental Inspector (EIs) to ensure all sources of dust generation are identified.

4.0 Best Practical Methods of Fugitive Dust Control

Existing highways, frontage roads, and secondary roads will be used for access to the Construction Right-of-Way (ROW). Paved access roads will be kept free of mud and soil that may track onto the road surface from the Construction ROW through the use of gravel access pads and similar devices. If soil is transported onto a public road surface or other paved area, including parking lots, by construction equipment and vehicles, it will be removed as soon as practical from the road by shoveling or sweeping, and will be transported back to a designated sediment control disposal area within the Construction ROW. Road washing, if necessary, will only be allowed after the soil has been scraped from the paved road surface. Abatement measures for fugitive dust will be required on the Construction ROW or access roads in accordance with the requirements of the respective states, as described in Section 2.0 above. In addition, dust control measures will also be implemented as appropriate in response to any landowner concerns that may arise.

The most effective means of dust control is the frequent use of water from watering trucks to moisten exposed soils along the Project. Water for fugitive dust control purposes will be obtained as necessary through permits or purchase contracts with owners of valid existing water rights. These approvals will be acquired prior to construction. Withdrawal rates from approved streams will be less than or equal to 10 percent of the existing flow rate within each waterbody at the time of withdrawal in order to protect aquatic life and provide for downstream water uses in compliance with regulatory and permit requirements. Current proposed sources of water for dust abatement are in **Table 4.0-1** below.

Table 4.0-1 - Proposed Water Sources for Dust Abatement Purposes							
Data contained within this table are based on the REVLv18 centerline shapefile issued on 2/12/2010							
Project Section (MP start to MP end)	Source MP	Possible Source Waters	Source Waters Location (County, State)^a	Average Historic Daily Flow Rate, August/September (cfs)^b	Water Use Volume (gallons)	Withdrawal Watershed (HUC)	Disposal Watershed (HUC)
MP (-0.49) to 84.46	8.81	W1 – Love Land	Campbell, WY	N/A	240,000	Upper Powder (10090202)	Little Powder (10090208)
MP (-0.49) to 64.46	N/A	City of Gillette Municipal water source	Campbell, WY	N/A	360,000	Little Powder (10090208)	Little Powder (10090208)
MP 64.46 to 114.28	72.25	Little Powder River	Carter, MT	5.24	360,000	Little Powder (10090208)	Little Powder (10090208)
MP 72.25 to 143.22	114	Philippi Reservoir	Carter, MT	Unavailable	360,000	Boxelder (10110202)	Boxelder (10110202)
MP 143.22 to 199.86	183	Little Missouri River	Bowman, ND	73.79	240,000	Upper Little Missouri (10110201)	Upper Little Missouri (10110201)
MP 199.86 to 258.38	251	Cannonball River	Hettinger, ND	10.1	240,000	Upper Cannonball (10130204)	Upper Cannonball (10130204)
MP 258.38 to 301.43	282	Heart River	Stark, ND	26.87	240,000	Upper Heart (10130202)	Upper Heart (10130202)
^a Water source information is relevant to water intended for use for fugitive dust control in addition to the water required for other uses such as hydrostatic testing and HDD. ^b cfs = “Cubic Feet per Second.” Historic flow rate data are based upon USGS streamflow data.							
HUC- Hydrologic Unit Code							

As shown in **Table 4.0-1**, Bison proposes to withdraw water at seven locations for use in controlling fugitive dust. Intakes will be screened (0.1 inch mesh screen), and the intake pumps will be continuously monitored during water withdrawal operations. Secondary containment will be used to isolate the pump engine during water withdrawals in the form of metal, straw bale berms, and/or plastic liners, based upon the Contractor's execution plan **and detailed in Bison's Spill Prevention, Control, and Countermeasure (SPCC) Plan**. Plastic liners, if used, will be leak tested, as specified in the SPCC Plan. Typically, the use of metal or plastic liner spill containment is equally effective. The use of pre-fabricated metal containment or prefabricated thick-walled polyethylene containment may be more practical in circumstances where relatively small containment is required or in rough terrain conditions.

Water will be transported from the source to the Construction ROW or access roads along the Project by way of water trucks. Bison estimates that the three construction spreads will have 23 truck trips per day, and therefore will transport a total of 77,280 gallons per day. Based upon these estimations, total water usage by Bison for dust control purposes is projected to be approximately 21,600,000 gallons for the entire project.

Other practical methods of fugitive dust control that may be used during construction on the ROW include:

- Application of water and/or a non-toxic chemical dust suppressant, alone or in combination with mulches. Potential chemical dust suppressants for the Project that may be applied where permitted include:
 - Vital Bon-Matt CDS 300;
 - Vital Bon-Matt P47;
 - Vital Bon-Matt P51; and
 - EnviroLogic® 500.
- Material Safety Data Sheets (MSDSs) for the above-listed potential non-toxic chemical dust suppressants are provided as **Attachment A**. Use of wind fences, berms, or other covering material, such as gravel or geotextile fabric;
- Watering or using a non-toxic chemical suppressant on unpaved roads in the construction area that pass within 0.25 mile of inhabited dwellings;
- Reduction of vehicle speed along unpaved roads;
- Covering or otherwise constraining and maintaining all haul truck loads to minimize spillage and loss of materials; and
- Washing, wetting down, or covering all equipment prior to transit.

Note that chemical dust suppressants will not be used on BLM-managed lands crossed by the Project, unless explicitly authorized by the BLM.

5.0 Responsible Party

Bison Pipeline LLC (Bison) or their designated contractor will be responsible for all dust control in the Project area during the construction phase of the Project (7 days a week, including weekends and holidays). Bison or their representative will have a copy of this Fugitive Dust Control Plan available on-site at all times. Problem areas or potential problem areas that are identified during construction must be controlled as soon as possible after being brought to the attention of the Contractor.

6.0 Project Contact for Landowners

Prior to construction, landowners will be provided with the local construction office phone number to facilitate communication with Bison's Construction Project team. A landowner complaint resolution process will be used to quickly and effectively remedy any issues that may arise.

7.0 General Contractors

The **general contractors will be chosen in Spring 2010**, and their contact information will be incorporated into this plan when available. The contractors chosen for the Project will implement the dust control measures specified in this plan, while Bison's EI will be primarily responsible for monitoring and enforcing the implementation of needed dust control measures as well as ensuring that dust control is effective and proper documentation is maintained. All construction site personnel will be educated on the measures outlined in this plan.

Field inspection for dust control will occur daily during the construction phase of the Project. Bison contractors and EIs will be responsible for recording the following information on a daily basis for the purpose of fugitive dust monitoring and control:

- Weather conditions (temperature, wind speed, and direction);
- Number of water trucks in use;
- Instances where fugitive dust was of such a concentration that abatement measures were implemented;
- Condition of project soils (crusted, damp, or unstable);
- Presence of tracked-out fugitive dust and when it was cleaned; and
- Overall status of dust control compliance.

The EI's daily report will include this information and will be made available for review by interested local agency representatives upon request.

Attachment A



Material Safety Data Sheet

Product Name **VITAL BON-MATT CDS 300**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name VITAL CHEMICAL PTY LTD
Address 304 Brisbane Terrace, Goodna, QLD, AUSTRALIA, 4300
Telephone (07) 3288 3500
Fax (07) 3288 2100
Emergency 0411 405 175; 0412 296 330; 0413 659 956
Email enquiries@vitalindustries.com.au
Web Site <http://www.vitalindustries.com.au/>
Synonym(s) VITAL BON-MATT CDS 300
Use(s) DUST SUPPRESSANT
MSDS Date 06 Oct 2008

2. HAZARDS IDENTIFICATION

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO NOHSC CRITERIA

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

UN No.	None Allocated	DG Class	None Allocated	Subsidiary Risk(s)	None Allocated
Packing Group	None Allocated	Hazchem Code	None Allocated	EPG	None Allocated

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content
WATER	H ₂ O	7732-18-5	<45%
TRIGLYCERIDE(S)	Not Available	Not Available	<30%
ORGANIC GUM(S)	Not Available	Not Available	<20%
CELLULOSIC MATERIAL	Not Available	Not Available	<10%

4. FIRST AID MEASURES

Eye If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poison Information Centre or a doctor, or for at least 15 minutes.
Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.
Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre or a doctor.
Ingestion For advice, contact a Poisons Information Centre or a doctor (at once). If swallowed, do not induce vomiting.
Advice to Doctor Treat symptomatically

5. FIRE FIGHTING MEASURES

Flammability	Non flammable. May evolve toxic gases (hydrocarbons, carbon oxides) when heated to decomposition.
Fire and Explosion	Non flammable. If product is present in a fire, toxic gases (carbon oxides, hydrocarbons) may be evolved. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.
Extinguishing	Non flammable.
Hazchem Code	None Allocated

6. ACCIDENTAL RELEASE MEASURES

Spillage	If spilt, absorb with sand or similar. Wear splash-proof goggles, PVC/rubber gloves, coveralls and rubber boots. Collect and place in sealable containers for disposal. Caution: Spill site may be slippery.
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7. STORAGE AND HANDLING

Storage	Store in cool, dry, well ventilated area, removed from oxidising agents, acids and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use.
Handling	Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Exposure Stds	No exposure standard(s) allocated.
Biological Limits	No Biological Limit Value allocated.
Engineering Controls	Ensure adequate natural ventilation.
PPE	No personal protective equipment is normally required. With prolonged use, wear PVC or rubber gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	LIQUID	Solubility (Water)	SOLUBLE
Odour:	SLIGHT ODOUR	Specific Gravity	1 (Approximately)
pH	NEUTRAL	% Volatiles	NOT AVAILABLE
Vapour Pressure	NOT AVAILABLE	Flammability	NON FLAMMABLE
Vapour Density	NOT AVAILABLE	Flash Point	NOT RELEVANT
Boiling Point	NOT AVAILABLE	Upper Explosion Limit	NOT RELEVANT
Melting Point	NOT AVAILABLE	Lower Explosion Limit	NOT RELEVANT
Evaporation Rate	NOT AVAILABLE	Autoignition Temperature	NOT RELEVANT

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under recommended conditions of storage.
Conditions to Avoid	No known conditions to avoid.
Material to Avoid	Compatible with most commonly used substances.
Decomposition	May evolve toxic gases (hydrocarbons, carbon oxides) when heated to decomposition.
Hazardous Reactions	Polymerization is not expected to occur.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary	Low toxicity - low irritant. This product may only present a hazard with direct eye contact or with prolonged and repeated skin contact. No chronic effects are anticipated with normal use.
Eye	Low irritant. Contact may result in irritation and lacrimation.
Inhalation	Low irritant.
Skin	Low irritant. Prolonged or repeated contact may result in mild irritation, rash and dermatitis.
Ingestion	Low toxicity. Ingestion of large quantities may result in nausea, vomiting and gastrointestinal irritation.
Toxicity Data	No LD50 data available for this product.

12. ECOLOGICAL INFORMATION

Environment	This product is not anticipated to cause adverse effects to animal or plant life if released to the environment. Not expected to bioaccumulate.
Ecotoxicity	Not classified as dangerous to the aquatic environment.
Persistence / Degradability	This product is readily biodegradable.
Mobility	Miscible in water.

13. DISPOSAL CONSIDERATIONS

Waste Disposal	For small amounts, absorb with sand, vermiculite or similar and dispose of to an approved landfill site. For larger amounts, contact the manufacturer for additional information.
Legislation	Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

Shipping Name	None Allocated				
UN No.	None Allocated	DG Class	None Allocated	Subsidiary Risk(s)	None Allocated
Packing Group	None Allocated	Hazchem Code	None Allocated	EPG	None Allocated

15. REGULATORY INFORMATION

Poison Schedule	A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).
AICS	All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Additional Information	ABBREVIATIONS: ADB - Air-Dry Basis. BEI - Biological Exposure Indice(s) CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds. CNS - Central Nervous System. EINECS - European INventory of Existing Commercial chemical Substances. IARC - International Agency for Research on Cancer. M - moles per litre, a unit of concentration. mg/m3 - Milligrams per cubic metre.
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GREEN

PRODUCT NAME VITAL BON-MATT CDS 300

NOS - Not Otherwise Specified.
NTP - National Toxicology Program.
OSHA - Occupational Safety and Health Administration.
pH - relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm - Parts Per Million.
RTECS - Registry of Toxic Effects of Chemical Substances.
TWA/ES - Time Weighted Average or Exposure Standard.

HEALTH EFFECTS FROM EXPOSURE:

It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a Chem Alert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this Chem Alert report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

COLOUR RATING SYSTEM: RMT has assigned all Chem Alert reports a colour rating of Green, Amber or Red for the sole purpose of providing users with a quick and easy means of determining the hazardous nature of a product. Safe handling recommendations are provided in all Chem Alert reports so as to clearly identify how users can control the hazards and thereby reduce the risk (or likelihood) of adverse effects. As a general guideline, a Green colour rating indicates a low hazard, an Amber colour rating indicates a moderate hazard and a Red colour rating indicates a high hazard.

While all due care has been taken by RMT in the preparation of the Colour Rating System, it is intended as a guide only and RMT does not provide any warranty in relation to the accuracy of the Colour Rating System. As far as is lawfully possible, RMT accepts no liability or responsibility whatsoever for the actions or omissions of any person in reliance on the Colour Rating System.

Report Status

This document has been compiled by RMT on behalf of the manufacturer of the product and serves as the manufacturer's Material Safety Data Sheet ('MSDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

While RMT has taken all due care to include accurate and up-to-date information in this MSDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this MSDS.

Prepared By

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MSDS Date: 06 Oct 2008

End of Report



Material Safety Data Sheet

Product Name **VITAL BON-MATT P47**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name VITAL CHEMICAL PTY LTD
Address 304 Brisbane Terrace, Goodna, QLD, AUSTRALIA, 4300
Telephone (07) 3288 3500
Fax (07) 3288 2100
Emergency 0411 405 175; 0412 296 330; 0413 659 956
Email enquiries@vitalindustries.com.au
Web Site <http://www.vitalindustries.com.au/>

Synonym(s) VITAL CHEMICALS VITAL BON-MATT P47 • VITAL INDUSTRIES VITAL BON-MATT P47

Use(s) DUST SUPPRESSANT

MSDS Date 06 Oct 2008

2. HAZARDS IDENTIFICATION

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO NOHSC CRITERIA

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

UN No.	None Allocated	DG Class	None Allocated	Subsidiary Risk(s)	None Allocated
Packing Group	None Allocated	Hazchem Code	None Allocated	EPG	None Allocated

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content
WATER	H ₂ O	7732-18-5	<40%
TRIGLYCERIDE(S)	Not Available	Not Available	<30%
ORGANIC GUM(S)	Not Available	Not Available	<20%
POLYMER SOLUTION	Not Available	Not Available	<20%
CELLULOSIC MATERIAL	Not Available	Not Available	<10%

4. FIRST AID MEASURES

Eye If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poison Information Centre or a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre or a doctor (at once). If swallowed, do not induce vomiting.

Advice to Doctor Treat symptomatically

5. FIRE FIGHTING MEASURES

Flammability	Non flammable. May evolve toxic gases (hydrocarbons, carbon oxides) when heated to decomposition.
Fire and Explosion	Non flammable. If product is present in a fire, toxic gases (carbon oxides, hydrocarbons) may be evolved. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.
Extinguishing	Non flammable.
Hazchem Code	None Allocated

6. ACCIDENTAL RELEASE MEASURES

Spillage	If spilt, absorb with sand or similar. Wear splash-proof goggles, PVC/rubber gloves, coveralls and rubber boots. Collect and place in sealable containers for disposal. Caution: Spill site may be slippery.
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7. STORAGE AND HANDLING

Storage	Store in cool, dry, well ventilated area, removed from oxidising agents, acids and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use.
Handling	Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Exposure Stds	No exposure standard(s) allocated.
Biological Limits	No Biological Limit Value allocated.
Engineering Controls	Use in well ventilated areas.
PPE	No personal protective equipment is normally required. With prolonged use, wear PVC or rubber gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	LIQUID	Solubility (Water)	SOLUBLE
Odour:	SLIGHT ODOUR	Specific Gravity	1.0 (Approximately)
pH	NEUTRAL	% Volatiles	NOT AVAILABLE
Vapour Pressure	NOT AVAILABLE	Flammability	NON FLAMMABLE
Vapour Density	NOT AVAILABLE	Flash Point	NOT RELEVANT
Boiling Point	NOT AVAILABLE	Upper Explosion Limit	NOT RELEVANT
Melting Point	NOT AVAILABLE	Lower Explosion Limit	NOT RELEVANT
Evaporation Rate	NOT AVAILABLE	Autoignition Temperature	NOT RELEVANT

GREEN

PRODUCT NAME **VITAL BON-MATT P47**

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under recommended conditions of storage.
Conditions to Avoid	No known conditions to avoid.
Material to Avoid	Compatible with most commonly used substances.
Decomposition	May evolve toxic gases (hydrocarbons, carbon oxides) when heated to decomposition.
Hazardous Reactions	Polymerization is not expected to occur.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary	Low toxicity - low irritant. Use safe work practices to avoid eye or skin contact and vapour inhalation. Due to the low vapour pressure of this product an inhalation hazard is not anticipated under normal conditions.
Eye	Low irritant. Contact may result in irritation and lacrimation.
Inhalation	Low irritant. Low product vapour pressure (low volatility), considerably reduces the potential for an inhalation hazard.
Skin	Low irritant. Prolonged or repeated contact may result in mild irritation, rash and dermatitis.
Ingestion	Low toxicity. Ingestion of large quantities may result in nausea, vomiting and gastrointestinal irritation.
Toxicity Data	No LD50 data available for this product.

12. ECOLOGICAL INFORMATION

Environment	This product is not anticipated to cause adverse effects to animal or plant life if released to the environment. Not expected to bioaccumulate.
Ecotoxicity	Not classified as dangerous to the aquatic environment.
Persistence / Degradability	This product is readily biodegradable.
Mobility	Miscible in water.

13. DISPOSAL CONSIDERATIONS

Waste Disposal	For small amounts absorb with sand, vermiculite or similar and dispose of to an approved landfill site. Contact the manufacturer for additional information if larger amounts are involved.
Legislation	Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

Shipping Name	None Allocated				
UN No.	None Allocated	DG Class	None Allocated	Subsidiary Risk(s)	None Allocated
Packing Group	None Allocated	Hazchem Code	None Allocated	EPG	None Allocated

15. REGULATORY INFORMATION

Poison Schedule	A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).
AICS	All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Additional Information	ABBREVIATIONS: ADB - Air-Dry Basis. BEI - Biological Exposure Indices CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds. CNS - Central Nervous System. EINECS - European Inventory of Existing Commercial chemical Substances. IARC - International Agency for Research on Cancer. M - moles per litre, a unit of concentration.
-------------------------------	--

GREEN

PRODUCT NAME VITAL BON-MATT P47

mg/m³ - Milligrams per cubic metre.

NOS - Not Otherwise Specified.

NTP - National Toxicology Program.

OSHA - Occupational Safety and Health Administration.

pH - relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).

ppm - Parts Per Million.

RTECS - Registry of Toxic Effects of Chemical Substances.

TWA/ES - Time Weighted Average or Exposure Standard.

HEALTH EFFECTS FROM EXPOSURE:

It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a Chem Alert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this Chem Alert report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

COLOUR RATING SYSTEM: RMT has assigned all Chem Alert reports a colour rating of Green, Amber or Red for the sole purpose of providing users with a quick and easy means of determining the hazardous nature of a product. Safe handling recommendations are provided in all Chem Alert reports so as to clearly identify how users can control the hazards and thereby reduce the risk (or likelihood) of adverse effects. As a general guideline, a Green colour rating indicates a low hazard, an Amber colour rating indicates a moderate hazard and a Red colour rating indicates a high hazard.

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Report Status

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It is based on information concerning the product which has been provided to RMT by the manufacturer or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

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Fax: +61 8 9322 1794
Email: info@rmt.com.au
Web: www.rmt.com.au

MSDS Date: 06 Oct 2008

End of Report



Material Safety Data Sheet

Product Name **VITAL BON-MATT P51**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name VITAL CHEMICAL PTY LTD
Address 304 Brisbane Terrace, Goodna, QLD, AUSTRALIA, 4300
Telephone (07) 3288 3500
Fax (07) 3288 2100
Emergency 0411 405 175; 0412 296 330; 0413 659 956
Email enquiries@vitalindustries.com.au
Web Site <http://www.vitalindustries.com.au/>

Synonym(s) VITAL CHEMICALS VITAL BON-MATT P51 • VITAL INDUSTRIES VITAL BON-MATT P51

Use(s) DUST SUPPRESSANT

MSDS Date 06 Oct 2008

2. HAZARDS IDENTIFICATION

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO NOHSC CRITERIA

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

UN No.	None Allocated	DG Class	None Allocated	Subsidiary Risk(s)	None Allocated
Packing Group	None Allocated	Hazchem Code	None Allocated	EPG	None Allocated

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content
WATER	H ₂ O	7732-18-5	<40%
ORGANIC GUM(S)	Not Available	Not Available	<20%
POLYMER SOLUTION	Not Available	Not Available	<20%
CELLULOSIC MATERIAL	Not Available	Not Available	<10%

4. FIRST AID MEASURES

Eye If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poison Information Centre or a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre or a doctor (at once). If swallowed, do not induce vomiting.

Advice to Doctor Treat symptomatically

5. FIRE FIGHTING MEASURES

Flammability	Non flammable. May evolve toxic gases (hydrocarbons, carbon oxides) when heated to decomposition.
Fire and Explosion	Non flammable. If product is present in a fire, toxic gases (carbon oxides, hydrocarbons) may be evolved. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.
Extinguishing	Non flammable.
Hazchem Code	None Allocated

6. ACCIDENTAL RELEASE MEASURES

Spillage	If spilt, absorb with sand or similar. Wear splash-proof goggles, PVC/rubber gloves, coveralls and rubber boots. Collect and place in sealable containers for disposal. Caution: Spill site may be slippery.
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7. STORAGE AND HANDLING

Storage	Store in cool, dry, well ventilated area, removed from oxidising agents, acids and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use.
Handling	Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Exposure Stds	No exposure standard(s) allocated.
Biological Limits	No Biological Limit Value allocated.
Engineering Controls	Use in well ventilated areas.
PPE	No personal protective equipment is normally required. With prolonged use, wear PVC or rubber gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	LIQUID	Solubility (Water)	SOLUBLE
Odour:	SLIGHT ODOUR	Specific Gravity	1 (Approximately)
pH	NEUTRAL	% Volatiles	NOT AVAILABLE
Vapour Pressure	NOT AVAILABLE	Flammability	NON FLAMMABLE
Vapour Density	NOT AVAILABLE	Flash Point	NOT RELEVANT
Boiling Point	NOT AVAILABLE	Upper Explosion Limit	NOT RELEVANT
Melting Point	NOT AVAILABLE	Lower Explosion Limit	NOT RELEVANT
Evaporation Rate	NOT AVAILABLE	Autoignition Temperature	NOT RELEVANT

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under recommended conditions of storage.
Conditions to Avoid	No known conditions to avoid.
Material to Avoid	Compatible with most commonly used substances.
Decomposition	May evolve toxic gases (hydrocarbons, carbon oxides) when heated to decomposition.
Hazardous Reactions	Polymerization is not expected to occur.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary	Low toxicity - low irritant. Use safe work practices to avoid eye or skin contact and vapour inhalation. Due to the low vapour pressure of this product an inhalation hazard is not anticipated under normal conditions.
Eye	Low irritant. Contact may result in irritation and lacrimation.
Inhalation	Low irritant. Low product vapour pressure (low volatility), considerably reduces the potential for an inhalation hazard.
Skin	Low irritant. Prolonged or repeated contact may result in mild irritation, rash and dermatitis.
Ingestion	Low toxicity. Ingestion of large quantities may result in nausea, vomiting and gastrointestinal irritation.
Toxicity Data	No LD50 data available for this product.

12. ECOLOGICAL INFORMATION

Environment	This product is not anticipated to cause adverse effects to animal or plant life if released to the environment. Not expected to bioaccumulate.
Ecotoxicity	Not classified as dangerous to the aquatic environment.
Persistence / Degradability	This product is readily biodegradable.
Mobility	Miscible in water.

13. DISPOSAL CONSIDERATIONS

Waste Disposal	For small amounts absorb with sand, vermiculite or similar and dispose of to an approved landfill site. Contact the manufacturer for additional information if larger amounts are involved.
Legislation	Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

Shipping Name	None Allocated				
UN No.	None Allocated	DG Class	None Allocated	Subsidiary Risk(s)	None Allocated
Packing Group	None Allocated	Hazchem Code	None Allocated	EPG	None Allocated

15. REGULATORY INFORMATION

Poison Schedule	A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).
AICS	All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Additional Information	ABBREVIATIONS: ADB - Air-Dry Basis. BEI - Biological Exposure Indice(s) CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds. CNS - Central Nervous System. EINECS - European INventory of Existing Commercial chemical Substances. IARC - International Agency for Research on Cancer.
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PRODUCT NAME VITAL BON-MATT P51

M - moles per litre, a unit of concentration.
mg/m³ - Milligrams per cubic metre.
NOS - Not Otherwise Specified.
NTP - National Toxicology Program.
OSHA - Occupational Safety and Health Administration.
pH - relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm - Parts Per Million.
RTECS - Registry of Toxic Effects of Chemical Substances.
TWA/ES - Time Weighted Average or Exposure Standard.

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Prepared By

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Email: info@rmt.com.au
Web: www.rmt.com.au

MSDS Date: 06 Oct 2008

End of Report



Material Safety Data Sheet

EnviroLogic® 500 Biodegradable Dust Suppressant

Section 1 Chemical Product and Company Information

Terresolve Technologies Ltd.
35585 Curtis Blvd.
Eastlake, Ohio 44095
Phone: 440-951-8633
Fax: 440-951-4341

PRODUCT TRADE NAME: EnviroLogic® 500
CAS NO: Mixture
SYNONYMS: None
GENERIC/CHEMICAL NAME: Mixture
PRODUCT TYPE: Dust Suppressant
PREPARATION/REVISION DATE: 03/07/1997
TRANSPORTATION EMERGENCY NO: 1-800-661-3558

Section 2 Composition/Information On Ingredients

NAME
Natural ester base oil
Proprietary surfactant mixture

This material has no known hazards under applicable laws.

Section 3 Hazards Identification

PRINCIPAL HAZARDS: This material has no known hazards.

See Section 11 for complete health hazard information.

Section 4 First Aid Measures

ORAL: DO NOT INDUCE VOMITING. If conscious, give 2 glasses of water. Get immediate medical attention.

EYE: Flush with water at least 15 minutes. Get medical attention if eye irritation develops or persists.

SKIN: Wash with soap and water. Get medical attention if irritation develops. Launder contaminated clothing before reuse.

INHALATION: Remove exposed person to fresh air if adverse effects



are observed.

ADDITIONAL: Note to physician: Treat symptomatically.

Section 5 Firefighting Measures

FLASH POINT (Typical):	>400 °F (Typical) (COC).
UPPER FLAMMABLE LIMIT:	Not Determined.
LOWER FLAMMABLE LIMIT:	Not Determined.
EXTINGUISHING MEDIA:	CO2, dry chemical, foam, water spray, water fog.
SPECIAL FIREFIGHTING PROCEDURES:	Recommend wearing self-contained breathing apparatus. Water may be ineffective fighting fires.
UNUSUAL FIRE & EXPLOSION HAZARDS:	Toxic fumes, gases or vapors may evolve on burning.
AUTOIGNITION TEMPERATURE:	Not Determined.
EXPLOSION DATA:	Material does not have explosive properties.

Section 6 Accidental Release Measures

SPILL PROCEDURES:	Personal Protective Equipment must be worn, see Personal Protection Section for PPE recommendations. Ventilate area if spilled in confined space or other poorly ventilated areas. Prevent entry into sewers and waterways. Pick up free liquid for recycle and/or disposal. Residual liquid can be absorbed on inert material. Check under Transportation and Labeling (DOT/CERCLA) and Other Regulatory Information Section (SARA) for hazardous substances to determine regulatory reporting requirements for spills.
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Section 7 Handling and Storage

HANDLING PROCEDURES:	Keep containers closed when not in use. Wash thoroughly after handling.
STORAGE PROCEDURES:	No special storage precautions required.

Section 8 Exposure Controls/Personal Protection

VENTILATION PROCEDURE:	Use with adequate ventilation.
GLOVES PROTECTION:	Use nitrile or neoprene gloves.
EYE PROTECTION:	Safety Glasses.



RESPIRATORY PROTECTION:

Under normal use conditions, respirator is not usually required. Use NIOSH/MSHA approved disposable dust/mist mask if the recommended exposure limit is exceeded.

Section 9 Physical And Chemical Properties

VAPOR PRESSURE:	Not Determined.
PH:	Not Determined.
SPECIFIC GRAVITY:	0.92 at 15.6 Deg C.
WATER SOLUBILITY:	Emulsifiable.
PERCENT VOLATILE:	Unknown.
VAPOR DENSITY:	Not Determined.
EVAPORATION RATE:	Not Determined.
ODOR:	Mild.
APPEARANCE:	Golden, slightly turbid, stable liquid.
VISCOSITY:	36 Centistokes at 40 Deg C (Typical).

Section 10 Stability And Reactivity

STABILITY:	Material is normally stable at elevated temperatures and pressures.
INCOMPATIBILITY:	Oxidizing agents.
POLYMERIZATION:	Will not occur.
THERMAL DECOMPOSITION:	Smoke, carbon monoxide, aldehydes and other products of incomplete combustion.

Section 11 Toxicological Information

ORAL TOXICITY:	The LD50 in rats is > 5000 mg/kg. Based on data from components or similar materials.
EYE IRRITATION:	Not expected to cause eye irritation. Based on data from components or similar materials.
SKIN IRRITATION:	Not expected to be a primary skin irritant. Based on data from components or similar materials. Prolonged or repeated skin contact as from clothing wet with material may cause dermatitis. Symptoms may include redness, edema, drying, defatting and cracking of the skin.
DERMAL TOXICITY:	The LD50 in rabbits is > 2000 mg/Kg. Based on data from components or similar materials.



INHALATION TOXICITY:	No data available to indicate product or components may be a toxic inhalation hazard.
RESPIRATORY IRRITATION:	If material is misted or if vapors are generated from heating, exposure may cause irritation of mucous membranes and the upper respiratory tract similar to that observed with mineral oil. Based on data from components or similar materials. Under good industrial hygiene practices where all exposure limits are observed, respiratory irritation should not be a problem.
DERMAL SENSITIZATION:	No data available to indicate product or components may be a skin sensitizer.
INHALATION SENSITIZATION:	No data available to indicate product or components may be respiratory sensitizers.
CHRONIC TOXICITY:	No data available to indicate product or components present at greater than 1% are chronic health hazards.
CARCINOGENICITY:	No data available to indicate any components present at greater than 0.1% may present a carcinogenic hazard.
MUTAGENICITY:	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
REPRODUCTIVE TOXICITY:	No data available to indicate either product or components toxicity.
REPRODUCTIVE TOXICITY:	No data available to indicate either product or components present at greater than 0.1% that may cause reproductive toxicity.
TERATOGENICITY:	No data available to indicate product or any components contained at greater than 0.1% may cause birth defects.
OTHER:	No other health hazards known.
EXPOSURE LIMITS:	Contains natural ester oil, Under conditions which may generate mists, observe the OSHA PEL of 5 mg per cubic meter, ACGIH STEL of 10 mg per cubic meter.

Section 12 Ecological Information

FRESHWATER FISH TOXICITY:	An environmental effects test program for freshwater fish is in progress.
FRESHWATER INVERTEBRATES TOXICITY:	An environmental effects test program for freshwater invertebrates is in progress.
ALGAE TOXICITY:	Environmental effects data for algae is not available on all materials.



SALTWATER FISH TOXICITY: Environmental effects data for saltwater fish is not available on all materials.

SALTWATER INVERTEBRATES: Environmental effects data for saltwater invertebrates is not available on all materials.

BACTERIA TOXICITY: An environmental effects test program for bacteria is in progress.

ENVIRONMENTAL FATE: Product shows biodegradation of >95% by CEC L-33-T-82 test procedure.

Section 13 Disposal Considerations

WASTE DISPOSAL: Material, if discarded, is not expected to be a characteristic hazardous waste under RCRA. Waste management should be in compliance with federal, state, and local laws.

Section 14 Transport Information

U.S.DOT BULK SHIPPING DESCRIPTION: Not applicable.

U.S.DOT NON-BULK SHIPPING DESCRIPTION: Not applicable.

IMDG SHIPPING DESCRIPTION: Not applicable.

ICAO SHIPPING DESCRIPTION: Not applicable.

ADR/RID HAZARD CLASS: Not applicable.

Section 15 Regulatory Information

U.S. TSCA INVENTORY: All components of this material are on the US TSCA Inventory.

SARA EXT. HAZ. SUBST.: This product does not contain greater than 1.0% of any chemical substance on the SARA Extremely Hazardous Substances list.

SARA SECTION 313: This product does not contain greater than 1.0% (greater than 0.1% for carcinogenic substance) of any chemical substances listed under SARA Section 313.

CERCLA HAZARDOUS SUBSTANCES: None known.

CAL. PROP. 65: This product is not known to contain any chemical known by the State of California to cause cancer or birth defects.

U.S. FUEL REGISTRATION: Not applicable.

U.S. DEPT. OF AGRICULTURE: This product has not been filed with the USDA to support H2



- AGRICULTURE: approvals.
- FDA APPROVAL: Not applicable.
- EEC EINECS: All components are in compliance with the EC Seventh amendment Directive 92 /32/EEC.
- JAPAN MITI: This product may require notification in Japan.
- AUSTRALIA: All components are in compliance with chemical notification requirements in Australia.
- CANADA: This material contains a chemical which is being notified and tracked as required by the Canadian Environmental Protection Act. This material or products containing this material may be exported to Canada.
- AUSTRIA: All components are in compliance with the Austrian Chemical Laws.
- SWITZERLAND: All components are in compliance with the Environmentally Hazardous Substances Ordinance in Switzerland.

Section	16	Other Information	
NFPA CODE:	Health: 1	Fire: 1	Reactivity: 0
HMIS CODE:	Health: 1	Fire: 1	Reactivity: 0

PRECAUTIONARY LABELS: - This material has no known hazards.

REVISION INDICATORS: - This MSDS has no revisions since 04/03/97

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