

SAFETY DATA SHEET

U.S. Department of Labor Compliance
 OSHA's Hazard Communication Standard (29 CFR 1910.1200)

Date of Issue/Revision: 26 Feb. 2015
 According REACH Title IV, Annex II and Format ISO 11014. GHS Rev.03.

SECTION 1 - PRODUCT AND COMPANY INFORMATION

PRODUCT USE & IDENTITY: **SPECIAL CHAIN, BAR, AND SPROCKET OIL. ISO GRADES: 68 & 150**
 Product Use: Lubricant, Industrial chain & sprocket oil. AGMA Classification: 2E, 4E
 MANUFACTURER'S NAME - Pinnacle Resources, Inc.
 5504 Jefferson Parkway
 Pine Bluff, Arkansas 71602
 EMERGENCY ASSISTANCE (870) 247-2315
 Bus. Telephone No. (870) 247-2315
 Product Information (870) 247-2315

SECTION 2 - HAZARDS IDENTIFICATION

U.S. OSHA Communication Standard: Product assessed in accordance with OSHA 29 CFR 1910.1200 and determined not to be hazardous. Effects of overexposure: No significant effects expected.

Emergency Response Data: Liquid with varying color and clarity. DOT ERG No. - NA SEC: 0
 Applicable GHS Classifications: Category 4-FLAMMABLE LIQUIDS. Category 2- MILD SKIN IRRITATION.
 Category 2A-EYE DAMAGE/IRRITATION. Category 3-AQUATIC TOXICITY (Sec. 12).



HMIS
 (Sec. 5 Definition)

Hazardous Material Information System (U.S.A.)

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

P Special Chain, Bar, and Sprocket Oil, ISO 68 & 150
 1 Solvent refined, hydrotreated mineral distillate base oil.
 2 Other refined and hydroprocessed mineral base oil.
 3 Other minor base oil components

%Weight
 100
 65-75
 8-14
 <2

SECTION 4 - FIRST AID MEASURES

Eye Contact - Flush with water for 15 minutes while holding eyelids open. If irritation persists, get medical attention.
 Skin Contact - Remove contaminated clothing and wipe excess off. Wash with soap and water or a waterless hand cleaner followed by soap and water. If irritation occurs, get medical attention.
 Inhalation - If overcome by vapor remove victim to fresh air; administer oxygen if breathing is difficult. Get medical attention.
 Ingestion - Do not induce vomiting. In general no treatment is necessary unless large quantities of product are ingested. However, get medical attention.
 Note to Physician - In general, Emesis Induction is unnecessary in high viscosity, low volatility products, I.E., most oils and greases.

SECTION 5 - FIRE FIGHTING MEASURES

Flammable limits /% Volume in Air
 Lower: N/AV Upper: N/AV

NFPA RATINGS- Health: 1 Flammability: 1 Reactivity: 0 Special: --
 NFPA-HMIS RATINGS- Health: 1 Flammability: 1 Reactivity: 0



NFPA

National Fire Protection Association (U.S.A.)

Extinguishing Media:

Use water fog, foam, dry chemical or CO₂. Do not use a direct stream of water.

Special Fire Fighting Procedures and Precautions:

Material will not burn unless preheated. Do not enter confined fire-space without full bunker gear (Helmet with face shield, bunker coats, gloves and rubber boots), including a positive-pressure NIOSH-Approved self-contained breathing apparatus. Cool fire exposed containers with water.

Product will float and be reignited on surface of water.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:

May burn although not readily ignitable. Use cautious judgement when cleaning up large spills. ***Large Spills*** Wear respirator and protective clothing as appropriate. Shut off source of leak. If safe to do so, dike and contain. Remove with vacuum trucks or pump to storage salvage vessels. Soak up residue with an absorbent such as clay, sand, or other suitable materials; dispose of properly. Flush area with water to remove trace residue.
 Small Spills Take up with an absorbent material and dispose of properly.

Waste Disposal:

Place in an appropriate disposal facility in compliance with local regulations.

SECTION 7 - HANDLING AND STORAGE

The health effects noted below are consistent with requirements under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Eye Contact:

Lubricating oils are general considered no more than minimally irritating to the eyes.

Skin Contact:

Lubricating oils are generally considered no more than mildly irritating to the skin. Prolonged and repeated contact may result in various skin disorders such as Dermatitis, Folliculitis or Oil Acne.

Inhalation:

Inhalation of vapor (generated at high temperatures only) or oil mist from this product may result in mild irritation of the upper respiratory tract.

Ingestion:

Lubricating oils are generally considered no more than slightly toxic if swallowed.

Signs and symptoms:

Irritation as noted above.

Storage: Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Store and use only in equipment/containers designed for use with this product



(M)SDS: INDUSTRIAL SPECIALTY FLUID

2 of 2

Aggravated Medical Conditions:

Preexisting skin and respiratory disorders may be aggravated by exposure to this product. The International Agency For Cancer Research has determined there is sufficient evidence for the carcinogenicity in experimental animals exposed by contact to used motor (crankcase) oil. Handling procedures and safety precautions in the MSDS should be followed to minimize exposure to the product as used lubricating oil in gasoline or diesel fueled internal combustion engines.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Minimize skin contact. Wash with soap and water before eating, drinking, smoking or using toilet facilities. Launder contaminated clothing before reuse, properly dispose of contaminated leather articles, including shoes that cannot be decontaminated. Store in a cool, dry place with adequate ventilation. Keep away from open flames and high temperatures.

Respiratory Protection:

If exposure may or does exceed occupational exposure limits (SECTION 2) use a NIOSH-Approved respirator to prevent overexposure. In accord with 29 CFR 1910.134 use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors and particulate.

Protective clothing:

Wear chemical resistant gloves and other protective clothing as required to minimize skin contact. Wear safety goggles to avoid eye contact. Test data from published literature and/or glove and clothing manufacturers indicate the best protection is provided by nitrile gloves.

Occupational Exposure Limits (estimated 8-hour workday):

OSHA 29		ACGIH		OTHER
Standards	PEL/TWA	PEL/CEILING	TLV/TWA	TLV/STEL
Oil Mist	> 5 Mg/M ³ *	None	5Mg/M ³ *	10 Mg/M ³ *
				None

(*Oil Mist, Mineral)

SECTION 9 - PHYSICAL/CHEMICAL PROPERTIES

Physical State: Liquid	Auto Ignition Temperature: > 320°C/608°F	Upper/Lower Explosion/Flammability Limits: 1-10 %V (Based on Mineral Oil)
Boiling Point: Not Available	Gravity, (H ₂ O=10.0) API @ 60°F: 28 & 23	Melt Point: N/A Pour Point: -10°F & 10°F Flash Pt. COC: 380°F & 420°F
Evaporation Rate: N.A.	Percent Volatile by Volume: Negligible	Vapor Density: (Air=1.0) >1.0 Viscosity@100°C, cSt: 7.8 & 10.9
Solubility In Water: Negligible	Appearance: Clear-yellow to darker	Odor: Mild hydrocarbon Viscosity@ 40°C, cSt: 65 & 144
PH: N/A	Vapor Pressure: <0.03kPa (0.1 @ 20°C [Est])	Electrical Conductivity: Not expected to be a static accumulator.

SECTION 10 - REACTIVITY DATA

Stability: Stable Hazardous Polymerization: Will Not Occur Conditions and Materials to Avoid: Avoid heat, open flames and oxidizing materials.

Hazardous Decomposition Products:

Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulate and gases will evolve when this material undergoes pyrolysis or combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION 11 - TOXICOLOGICAL INFORMATION

Dermal LD50	>5.0 g/kg (Rabbit)	OSHA - Non Toxic	Based on similar material(s)
Oral LD50	>5.0 g/kg (Rat)	OSHA - Non Toxic	Based on similar material(s)
Carcinogenicity Classification (Highly Refined Mineral Oil/IP346<3%):		IARC 3=No carcinogenicity to humans.	ACGIH A4=Unclassified as a human
carcinogen.	GHS/CLP=No carcinogenicity classification.	NTP=No	IOSHA=No

SECTION 12 - ECOLOGICAL INFORMATION

This product is classified as an oil under section 311 of the Clean Water Act. Spills entering (A) surface waters of (B) any water courses or sewer's-entering/leading to surface waters that cause a sheen must be reported to the nearest local Environmental Protection Agency Office

**SECTION 13 - DISPOSAL CONSIDERATIONS**

Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration. Proper characterization is recommended. The product is suitable for processing by an approved recycling facility or can be disposed of at an appropriate government waste disposal facility. Compliance with all appropriate Federal, State, and Local regulations should be satisfied at time of disposal. Base Oil Component is expected to be inherently biodegradable. The total mixture may be harmful to aquatic organisms.

SECTION 14 - TRANSPORT INFORMATION

TDG Classification not regulated. Environmental transport classifications are indicate as non-hazard. DOT Identification Number: Not Regulated. IMDG: Not Regulated.

SECTION 15 - REGULATORY INFORMATION

U.S. TSCA 8b INVENTORY:	All components of this product are on the US TSCA Inventory.
Other TSCA Regulations:	None Known
SARA SECTIONS 301- 304:	This product does not contain greater than 1.0% of any chemical substance on the SARA Extremely Hazardous Substances List.
SARA SECTION 311/312(Hazard):	This product does not contain any chemical substance on SARA Hazard, Delayed Health Hazard List.
SARA SECTION 313:	This product does not contain greater than 1.0% (greater than 0.1% for carcinogenic substance) of any chemical (Toxic Chemicals) substances listed under SARA Section 313.
CERCLA HAZARDOUS SUBSTANCES:	None Known
FDA APPROVAL:	Not Applicable
RCRA STATUS:	If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. Under RCRA it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

SECTION 16 - OTHER INFORMATION

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE AND IS BELIEVED TO BE CORRECT. HOWEVER, PINNACLE RESOURCES, INC. MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. PINNACLE RESOURCES, INC. ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

Date Prepared: February 26, 2015

PINNACLE RESOURCES, INC. MANUFACTURING FACILITY
Pine Bluff, Arkansas

(M)SDSn: 9201.A.ChainBarSprokOil 68&150.SD150226

SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY INFORMATION

Product Name: **AUTOMOTIVE GEAR LUBRICANT SAE 90 & 140**

Product use: Lubricant, API Classification: GL-1

Manufactures Name: Pinnacle Resources, Inc.
5504 Jefferson Parkway
Pine Bluff, AR 71602

Emergency Assistance: 870-247-2315

Business Telephone No.: 870-247-2315

Product Assistance: 870-247-2315

SECTION 2: HAZARD IDENTIFICATION

United States (U.S.)
According to OSHA 29 CFR 1910.1200 HCS

Classification of the mixture:
OSHA HCS 2012 Not Classified
Label Elements
OSHA HCS 2012 No signal word

Hazard Statements No known significant effects or critical hazards

Precautionary Statements No precautionary phrases

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

P Automotive Gear Lubricant SAE 90 & 140
1 Solvent refined, hydrotreated paraffinic distillate base oil
2 Solvent refined, hydrotreated residual oil
3 Other minor additives

%Weight
100
25-35
50-75
<1

SECTION 4: FIRST-AID MEASURES

Eye Contact - Flush with water for 15 minutes while holding eyelids open. If irritation persists, get medical attention.
Skin Contact - Remove contaminated clothing and wipe excess off. Wash with soap and water or a waterless hand cleaner followed by soap and water. If irritation occurs, get medical attention.
Inhalation - If overcome by vapor remove victim to fresh air; administer oxygen if breathing is difficult. Get medical attention.
Ingestion - Do not induce vomiting. In general no treatment is necessary unless large quantities of product are ingested. However, get medical attention.
Note to Physician - In general, Emesis Induction is unnecessary in high viscosity, low volatility products, I.E., most oils and greases.

SECTION 5: FIRE FIGHTING MEASURES

Flammable limits % Volume in Air
Lower: N/A/V Upper: N/A/V

NFPA RATINGS: Health 1 Flammability 1 Reactivity 0 Special -
NFPA-HMIS RATINGS: Health 1 Flammability 1 Reactivity 0



NFPA
National Fire Protection Association (U.S.A.)

Extinguishing Media:
Use water fog, foam, dry chemical or CO₂. Do not use a direct stream of water.

Fighting Procedures and Precautions:

Material will not burn unless preheated. Do not enter confined fire-space without full bunker gear (Helmet with face shield, bunker coats, gloves and rubber boots), including a positive-pressure NIOSH-Approved self-contained breathing apparatus. Cool fire exposed containers with water.

Product will float and be reignited on surface of water. Special Fire

SECTION 6: ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:

May burn although not readily ignitable. Use cautious judgement when cleaning up large spills. ***Large Spills*** Wear respirator and protective clothing as appropriate. Shut off source of leak. If safe to do so, dike and contain. Remove with vacuum trucks or pump to storage salvage vessels. Soak up residue with an absorbent such as clay, sand, or other suitable materials; dispose of properly. Flush area with water to remove trace residue.

Small Spills Take up with an absorbent material and dispose of properly.

Waste Disposal: Place in an appropriate disposal facility in compliance with local regulations.

SECTION 7: HANDLING AND STORAGE

The health effects noted below are consistent with requirements under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Eye Contact: Lubricating oils are general considered no more than minimally irritating to the eyes. Skin Contact: Lubricating oils are generally considered no more than mildly irritating to the skin. Prolonged and repeated contact may result in various skin disorders such as Dermatitis, Folliculitis or Oil Acne.

Inhalation: Inhalation of vapor (generated at high temperatures only) or oil mist from this product may result in mild irritation of the upper respiratory tract.

Ingestion: Lubricating oils are generally considered no more than slightly toxic if swallowed.

Signs and symptoms: Irritation as noted above.

Storage: Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Store and use only in equipment/containers designed for use with this product

Aggravated Medical Conditions:

Preexisting skin and respiratory disorders may be aggravated by exposure to this product. The International Agency For Cancer Research has determined there is sufficient evidence for the carcinogenicity in experimental animals exposed by contact to used motor (crankcase) oil. Handling procedures and safety precautions in the MSDS should be followed to minimize exposure to the product as used lubricating oil in gasoline or diesel fueled internal combustion engines.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Minimize skin contact. Wash with soap and water before eating, drinking, smoking or using toilet facilities. Launder contaminated clothing before reuse, properly dispose of contaminated leather articles, including shoes that cannot be decontaminated. Store in a cool, dry place with adequate ventilation. Keep away from open flames and high temperatures.

Respiratory Protection:

If exposure may or does exceed occupational exposure limits (SECTION 2) use a NIOSH-Approved respirator to prevent overexposure. In accord with 29 CFR 1910.134 use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors and particulate.

Protective clothing:

Wear chemical resistant gloves and other protective clothing as required to minimize skin contact. Wear safety goggles to avoid eye contact. Test data from published literature and/or glove and clothing manufacturers indicate the best protection is provided by nitrile gloves.

Occupational Exposure Limits (estimated 8-hour workday):

Standards	OSHA 29	PEL/CEILING	ACGIH TLV/TWA	TLV/STEL	OTHER
Oil Mist	---> 5 Mg/M ³	None	5 Mg/M ³	10 Mg/M ³	None

(Oil Mist, Mineral)

SECTION 9: PHYSICAL/CHEMICAL PROPERTIES

Physical State: Liquid
Boiling Point: NA
Evaporation Rate: NA
Solubility in Water: Negligible
PH: NA

Auto Ignition Temperature: >320°C/608°F
Gravity (H₂O=10.0) API @ 60°F: 24.3 & 22.8
Percent Volatile by Volume: Negligible
Appearance: Clear-Yellow brown
Vapor Pressure: <0.3kPa (0.1 @ 20°C [Est])

Upper/Lower Explosion/Flammability limits: 1-10 %V (based on Mineral Oil)
Melt Point: NA Pour Point: +5 to +15°F
Flash Pt., COC: 420°F to 425°F
Vapor Density: (Air=1.0) >1.0
Viscosity@ 100°C, cSt: 17.5 - 28.0
Odor: Mild Hydrocarbon
Electrical Conductivity: Not expected to be a static accumulator
Viscosity@ 40°C, cSt: 270 - 563

SECTION 10: REACTIVITY DATA

Stability: Stable
Hazardous Polymerization: Will Not Occur
Hazardous Decomposition Products: Conditions and Materials to Avoid: Avoid heat, open flames and oxidizing materials.

Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulate and gases will evolve when this material undergoes pyrolysis or combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

Dermal LD50

>5.0 g/kg (Rabbit)

OSHA - Non Toxic

Based on similar material(s)

Oral LD50

>5.0 g/kg (Rat)

OSHA - Non Toxic

Based on similar material(s)

Carcinogenicity Classification (Highly Refined Mineral Oil/IP346<3%).

GHS/CLP=No carcinogenicity classification.

IARC 3=No carcinogenicity to humans.

ACGIH A4=Unclassified as a
IOSHA=No

NTP=No

SECTION 12: ECOLOGICAL INFORMATION

This product is classified as an oil under section 311 of the Clean Water Act. Spills entering (A) surface waters of (B) any water courses or sewer's-entering/leading to surface waters that cause a sheen must be reported to the nearest local Environmental Protection Agency Office.

SECTION 13: DISPOSAL CONSIDERATIONS

Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration. Proper characterization is recommended. The product is suitable for processing by an approved recycling facility or can be disposed of at an appropriate government waste disposal facility. Compliance with all appropriate Federal, State, and Local regulations should be satisfied at time of disposal. Base Oil Component is expected to be inherently biodegradable. The total mixture may be harmful to aquatic organisms.

SECTION 14: TRANSPORT INFORMATION

TDG Classification not regulated. Environmental transport classifications are indicate as non-hazard. DOT Identification Number: Not Regulated.
IMDG: Not Regulated.

SECTION 15: REGULATORY INFORMATION

U.S. TSCA 8b INVENTORY:

Other TSCA Regulations:

SARA SECTIONS 301- 304:

SARA SECTION 311/312(Hazard):

SARA SECTION 313:

CERCLA HAZARDOUS SUBSTANCES:

FDA APPROVAL:

RCRA STATUS:

Under RCRA it is the

All components of this product are on the US TSCA Inventory.

None Known

This product does not contain greater than 1.0% of any chemical substance on the SARA Extremely Hazardous Substances List.

This product does not contain any chemical substance on SARA Hazard, Delayed Health Hazard List.

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

None Known

Not Applicable

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

SECTION 16: OTHER INFORMATION

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE AND IS BELIEVED TO BE CORRECT. HOWEVER, PINNACLE RESOURCES, INC. MAKES NO WARRANTY EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. PINNACLE RESOURCES, INC. ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

Date Prepared: July 22, 2015

PINNACLE RESOURCES, INC. MANUFACTURING FACILITY
Pine Bluff, Arkansas

SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY INFORMATION

Product Name: **SINGLE GRADE HEAVY DUTY MOTOR OIL.**
SAE Grades: 10W, 20W-20, 30, 40, 50 (10 TBN)

Product use: Lubricant, API Classification: CF/SM= 10W, 20W-20, CF-2/SM= 30, 40, 50

Manufactures Name: Pinnacle Resources, Inc.
 5504 Jefferson Parkway
 Pine Bluff, AR 71602

Emergency Assistance: 870-247-2315

Business Telephone No.: 870-247-2315

Product Assistance: 870-247-2315

SECTION 2: HAZARD IDENTIFICATION

United States (U.S.)
 According to OSHA 29 CFR 1910.1200 HCS

Classification of the mixture:
 OSHA HCS 2012 Not Classified
 Label Elements
 OSHA HCS 2012 No signal word

Hazard Statements No known significant effects or critical hazards

Precautionary Statements No precautionary phrases

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

P Single Grade HDMO, SAE 10W, 20W-20, 30, 40, 50	%Weight
1 Refined and hydrotreated light distillate mineral oil.	100
2 Refined and hydroprocessed heavy distillate/residual mineral base oil.	60-70
3 Additive system containing proprietary formulated ingredients	25-50
4 Other minor additives	3-8
	<1

SECTION 4: FIRST-AIDE MEASURES

Eye Contact - Flush with water for 15 minutes while holding eyelids open. If irritation persists, get medical attention.
 Skin Contact - Remove contaminated clothing and wipe excess off. Wash with soap and water or a waterless hand cleaner followed by soap and water. If irritation occurs, get medical attention.
 Inhalation - If overcome by vapor remove victim to fresh air; administer oxygen if breathing is difficult. Get medical attention.
 Ingestion - Do not induce vomiting. In general no treatment is necessary unless large quantities of product are ingested. However, get medical attention.
 Note to Physician - In general, Emesis induction is unnecessary in high viscosity, low volatility products, I.E., most oils and greases.

SECTION 5: FIRE FIGHTING MEASURES

Flammable limits % Volume in Air
 Lower: N/AV Upper: N/AV

NFPA RATINGS- Health: 1 Flammability: 1 Reactivity: 0 Special: --
 NFPA-HMIS RATINGS- Health: 1 Flammability: 1 Reactivity: 0
 Extinguishing Media:
 Use water fog, foam, dry chemical or CO₂. Do not use a direct stream of water.



NFPA

National Fire Protection Association (U.S.A.)

Fighting Procedures and Precautions:
 Material will not burn unless preheated. Do not enter confined fire-space without full bunker gear (Helmet with face shield, bunker coats, gloves and rubber boots), including a positive-pressure NIOSH-Approved self-contained breathing apparatus. Cool fire exposed containers with water.
 Product will float and be reignited on surface of water. Special Fire

SECTION 6: ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:
 May burn although not readily ignitable. Use cautious judgement when cleaning up large spills. ***Large Spills*** Wear respirator and protective clothing as appropriate. Shut off source of leak. If safe to do so, dike and contain. Remove with vacuum trucks or pump to storage salvage vessels. Soak up residue with an absorbent such as clay, sand, or other suitable materials; dispose of properly. Flush area with water to remove trace residue.
 Small Spills Take up with an absorbent material and dispose of properly.
 Waste Disposal: Place in an appropriate disposal facility in compliance with local regulations.

SECTION 7: HANDLING AND STORAGE

The health effects noted below are consistent with requirements under the OSHA Hazard Communication Standard (29 CFR 1910.1200).
 Eye Contact: Lubricating oils are general considered no more than minimally irritating to the eyes. Skin Contact: Lubricating oils are generally considered no more than mildly irritating to the skin. Prolonged and repeated contact may result in various skin disorders such as Dermatitis, Folliculitis or Oil Acne.
 Inhalation: Inhalation of vapor (generated at high temperatures only) or oil mist from this product may result in mild irritation of the upper respiratory tract.
 Ingestion: Lubricating oils are generally considered no more than slightly toxic if swallowed.
 Signs and symptoms: Irritation as noted above.
 Storage: Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Store and use only in equipment/containers designed for use with this product.

Aggravated Medical Conditions:

Preexisting skin and respiratory disorders may be aggravated by exposure to this product. The International Agency For Cancer Research has determined there is sufficient evidence for the carcinogenicity in experimental animals exposed by contact to used motor (crankcase) oil. Handling procedures and safety precautions in the MSDS should be followed to minimize exposure to the product as used lubricating oil in gasoline or diesel fueled internal combustion engines.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Minimize skin contact. Wash with soap and water before eating, drinking, smoking or using toilet facilities. Launder contaminated clothing before reuse, properly dispose of contaminated leather articles, including shoes that cannot be decontaminated. Store in a cool, dry place with adequate ventilation. Keep away from open flames and high temperatures.

Respiratory Protection:

If exposure may or does exceed occupational exposure limits (SECTION 2) use a NIOSH-Approved respirator to prevent overexposure. In accord with 29 CFR 1910.134 use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors and particulate.

Protective clothing:

Wear chemical resistant gloves and other protective clothing as required to minimize skin contact. Wear safety goggles to avoid eye contact. Test data from published literature and/or glove and clothing manufacturers indicate the best protection is provided by nitrile gloves.

Occupational Exposure Limits (estimated 8-hour workday):

Standards	OSHA Z1 PEL/TWA	PEL/CEILING	ACGIH TLV/TWA	TLV/STEL	OTHER
Oil Mist	5 Mg/M ³	None	5Mg/M ³	10 Mg/M ³	None

(*Oil Mist, Mineral)

SECTION 9: PHYSICAL/CHEMICAL PROPERTIES

Physical State: Liquid

Boiling Point: NA

Evaporation Rate: NA

Solubility in Water: Negligible

PH: NA

Auto Ignition Temperature: >320°C/608°F

Gravity.(H₂O=10.0) API @ 60°F: 27.9 - 24.9

Percent Volatile by Volume: Negligible

Appearance: Clear-Yellow brown

Vapor Pressure: <0.3kPa (0.1 @ 20°C [Est])

Upper/Lower Explosion/Flammability limits: 1-10 %V(based on Mineral Oil)

Melt Point: NA Pour Point: -25°F to 5°F

Vapor Density: (Air=1.0) >1.0

Odor: Mild Hydrocarbon

Electrical Conductivity: Not expected to be a static accumulator.

Flash Pt., COC: 400°F to 465°F

Viscosity@100°C, cSt: 6.5 - 18.7

Viscosity@ 40°C, cSt: 42 - 233

SECTION 10: REACTIVITY DATA

Stability: Stable

Hazardous Polymerization: Will Not Occur

Conditions and Materials to Avoid: Avoid heat, open flames and oxidizing materials.

Hazardous Decomposition Products:

Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulate and gases will evolve when this material undergoes pyrolysis or combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

Dermal LD50

>5.0 g/kg (Rabbit)

OSHA - Non Toxic

Based on similar material(s)

Oral LD50

>5.0 g/kg (Rat)

OSHA - Non Toxic

Based on similar material(s)

Carcinogenicity Classification (Highly Refined Mineral Oil/IP346<3%):
human carcinogen.

GHS/CLP=No carcinogenicity classification.

IARC 3=No carcinogenicity to humans.
NTP=No

ACGIH A4=Unclassified as a
IOSHA=No

SECTION 12: ECOLOGICAL INFORMATION

This product is classified as an oil under section 311 of the Clean Water Act. Spills entering (A) surface waters of (B) any water courses or sewer's-entering/leading to surface waters that cause a sheen must be reported to the nearest local Environmental Protection Agency Office.

SECTION 13: DISPOSAL CONSIDERATIONS

Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration. Proper characterization is recommended. The product is suitable for processing by an approved recycling facility or can be disposed of at an appropriate government waste disposal facility. Compliance with all appropriate Federal, State, and Local regulations should be satisfied at time of disposal. Base Oil Component is expected to be inherently biodegradable. The total mixture may be harmful to aquatic organisms.

SECTION 14: TRANSPORT INFORMATION

TDG Classification not regulated. Environmental transport classifications are indicate as non-hazard. DOT Identification Number: Not Regulated.
IMDG: Not Regulated.

SECTION 15: REGULATORY INFORMATION

U.S. TSCA 8b INVENTORY:

Other TSCA Regulations:

SARA SECTIONS 301- 304:

SARA SECTION 311/312(Hazard):

SARA SECTION 313:

CERCLA HAZARDOUS SUBSTANCES:

FOA APPROVAL:

RCRA STATUS:

Under RCRA it is the

All components of this product are on the US TSCA Inventory.

None Known

This product does not contain greater than 1.0% of any chemical substance on the SARA Extremely Hazardous Substances List.

This product does not contain any chemical substance on SARA Hazard, Delayed Health Hazard List.

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

None Known

Not Applicable

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

SECTION 16: OTHER INFORMATION

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE AND IS BELIEVED TO BE CORRECT. HOWEVER, PINNACLE RESOURCES, INC. MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. PINNACLE RESOURCES, INC. ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

Date Prepared: July 24, 2015

PINNACLE RESOURCES, INC. MANUFACTURING FACILITY
Pine Bluff, Arkansas

SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY INFORMATION

Product Name: **SINGLE GRADE HEAVY DUTY MOTOR OIL.**
SAE Grades: 10W, 20W-20, 30, 40, 50 (10 TBN)

Product use: Lubricant, API Classification: CF/SM= 10W, 20W-20, CF-2/SM= 30, 40, 50

Manufactures Name: Pinnacle Resources, Inc.
 5504 Jefferson Parkway
 Pine Bluff, AR 71602

Emergency Assistance: 870-247-2315

Business Telephone No.: 870-247-2315

Product Assistance: 870-247-2315

SECTION 2: HAZARD IDENTIFICATION

United States (U.S.)
 According to OSHA 29 CFR 1910.1200 HCS

Classification of the mixture:
 OSHA HCS 2012 Not Classified
 Label Elements
 OSHA HCS 2012 No signal word

Hazard Statements No known significant effects or critical hazards

Precautionary Statements No precautionary phrases

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

P Single Grade HDMO, SAE 10W, 20W-20, 30, 40, 50	%Weight
1 Refined and hydrotreated light distillate mineral oil.	100
2 Refined and hydroprocessed heavy distillate/residual mineral base oil.	60-70
3 Additive system containing proprietary formulated ingredients	25-50
4 Other minor additives.	3-8
	<1

SECTION 4: FIRST-AID MEASURES

Eye Contact - Flush with water for 15 minutes while holding eyelids open. If irritation persists, get medical attention.
 Skin Contact - Remove contaminated clothing and wipe excess off. Wash with soap and water or a waterless hand cleaner followed by soap and water. If irritation occurs, get medical attention.
 Inhalation - If overcome by vapor remove victim to fresh air; administer oxygen if breathing is difficult. Get medical attention.
 Ingestion - Do not induce vomiting. In general no treatment is necessary unless large quantities of product are ingested. However, get medical attention.
 Note to Physician - In general, Emesis Induction is unnecessary in high viscosity, low volatility products, I.E., most oils and greases.

SECTION 5: FIRE FIGHTING MEASURES

Flammable limits % Volume in Air
 Lower: N/AV Upper: N/AV

NFPA RATINGS- Health: 1 Flammability: 1 Reactivity: 0 Special: --
 NFPA-HMIS RATINGS- Health: 1 Flammability: 1 Reactivity: 0

Extinguishing Media:
 Use water fog, foam, dry chemical or CO₂. Do not use a direct stream of water.

Fighting Procedures and Precautions:

Material will not burn unless preheated. Do not enter confined fire-space without full bunker gear (Helmet with face shield, bunker coats, gloves and rubber boots), including a positive-pressure NIOSH-Approved self-contained breathing apparatus. Cool fire exposed containers with water.

NFPA

National Fire Protection Association (U.S.A.)



Product will float and be reignited on surface of water. Special Fire

SECTION 6: ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:

May burn although not readily ignitable. Use cautious judgement when cleaning up large spills. ***Large Spills*** Wear respirator and protective clothing as appropriate. Shut off source of leak. If safe to do so, dike and contain. Remove with vacuum trucks or pump to storage salvage vessels. Soak up residue with an absorbent such as clay, sand, or other suitable materials; dispose of properly. Flush area with water to remove trace residue.

Small Spills Take up with an absorbent material and dispose of properly.

Waste Disposal: Place in an appropriate disposal facility in compliance with local regulations.

SECTION 7: HANDLING AND STORAGE

The health effects noted below are consistent with requirements under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Eye Contact: Lubricating oils are general considered no more than minimally irritating to the eyes. Skin Contact: Lubricating oils are generally considered no more than mildly irritating to the skin. Prolonged and repeated contact may result in various skin disorders such as Dermatitis, Folliculitis or Oil Acne.

Inhalation: Inhalation of vapor (generated at high temperatures only) or oil mist from this product may result in mild irritation of the upper respiratory tract.

Ingestion: Lubricating oils are generally considered no more than slightly toxic if swallowed.

Signs and symptoms: Irritation as noted above.

Storage: Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Store and use only in equipment/containers designed for use with this product.

Aggravated Medical Conditions:

Preexisting skin and respiratory disorders may be aggravated by exposure to this product. The International Agency For Cancer Research has determined there is sufficient evidence for the carcinogenicity in experimental animals exposed by contact to used motor (crankcase) oil. Handling procedures and safety precautions in the MSDS should be followed to minimize exposure to the product as used lubricating oil in gasoline or diesel fueled internal combustion engines.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Minimize skin contact. Wash with soap and water before eating, drinking, smoking or using toilet facilities. Launder contaminated clothing before reuse, properly dispose of contaminated leather articles, including shoes that cannot be decontaminated. Store in a cool, dry place with adequate ventilation. Keep away from open flames and high temperatures.

Respiratory Protection:

If exposure may or does exceed occupational exposure limits (SECTION 2) use a NIOSH-Approved respirator to prevent overexposure. In accord with 29 CFR 1910.134 use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors and particulate.

Protective clothing:

Wear chemical resistant gloves and other protective clothing as required to minimize skin contact. Wear safety goggles to avoid eye contact. Test data from published literature and/or glove and clothing manufacturers indicate the best protection is provided by nitrile gloves.

Occupational Exposure Limits (estimated 8-hour workday):

OSHA 29		ACGIH		OTHER
Standards	PEL/TWA	TLV/TWA	TLV/STEL	
Oil Mist	> 5 Mg/M ³	5Mg/M ³	10 Mg/M ³	None
	PEL/CEILING			Oil Mist, Mineral

SECTION 9: PHYSICAL/CHEMICAL PROPERTIES

Physical State: Liquid
Boiling Point: NA
Evaporation Rate: NA
Solubility In Water: Negligible
PH: NA

Auto Ignition Temperature: >320°C/608°F
Gravity (H₂O=10.0) API @ 60°F: 27.9 - 24.9
Percent Volatile by Volume: Negligible
Appearance: Clear-Yellow brown
Vapor Pressure: <0.3kPa (0.1 @ 20°C [Est])

Upper/Lower Explosion/Flammability limits: 1-10 %V (based on Mineral Oil)
Melt Point: NA Pour Point: -25°F to 5°F
Flash Pt., COC: 400°F to 465°F
Vapor Density: (Air=1.0) >1.0
Odor: Mild Hydrocarbon
Electrical Conductivity: Not expected to be a static accumulator
Viscosity@ 100°C, cSt: 6.5 - 18.7
Viscosity@ 40°C, cSt: 42 - 233

SECTION 10: REACTIVITY DATA

Stability: Stable Hazardous Polymerization: Will Not Occur Conditions and Materials to Avoid: Avoid heat, open flames and oxidizing materials.
Hazardous Decomposition Products:

Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulate and gases will evolve when this material undergoes pyrolysis or combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

Dermal LD50	>5.0 g/kg (Rabbit)	OSHA - Non Toxic	Based on similar material(s)	ACGIH A4=Unclassified as a IOSHA=No
Oral LD50	>5.0 g/kg (Rat)	OSHA - Non Toxic	Based on similar material(s)	
Carcinogenicity Classification (Highly Refined Mineral Oil/IP346<3%): human carcinogen. GHS/CLP=No carcinogenicity classification				
			IARC 3=No carcinogenicity to humans NTP=No	

SECTION 12: ECOLOGICAL INFORMATION

This product is classified as an oil under section 311 of the Clean Water Act. Spills entering (A) surface waters or (B) any water courses or sewer's-entering/leading to surface waters that cause a sheen must be reported to the nearest local Environmental Protection Agency Office.

SECTION 13: DISPOSAL CONSIDERATIONS

Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration. Proper characterization is recommended. The product is suitable for processing by an approved recycling facility or can be disposed of at an appropriate government waste disposal facility. Compliance with all appropriate Federal, State, and Local regulations should be satisfied at time of disposal. Base Oil Component is expected to be inherently biodegradable. The total mixture may be harmful to aquatic organisms.

SECTION 14: TRANSPORT INFORMATION

TDG Classification not regulated. Environmental transport classifications are indicate as non-hazard. DOT Identification Number Not Regulated.
IMDG: Not Regulated.

SECTION 15: REGULATORY INFORMATION

U.S. TSCA 8b INVENTORY:	All components of this product are on the US TSCA Inventory.
Other TSCA Regulations:	None Known
SARA SECTIONS 301- 304:	This product does not contain greater than 1.0% of any chemical substance on the SARA Extremely Hazardous Substances List.
SARA SECTION 311/312(Hazard):	This product does not contain any chemical substance on SARA Hazard, Delayed Health Hazard List.
SARA SECTION 313:	This product does not contain greater than 1.0% (greater than 0.1% for carcinogenic substance) of any chemical (Toxic Chemicals) substances listed under SARA Section 313.
CERCLA HAZARDOUS SUBSTANCES:	None Known
FDA APPROVAL:	Not Applicable
RCRA STATUS:	If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic.
Under RCRA it is the	responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

SECTION 16: OTHER INFORMATION

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE AND IS BELIEVED TO BE CORRECT. HOWEVER, PINNACLE RESOURCES, INC. MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. PINNACLE RESOURCES, INC. ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

Date Prepared: July 24, 2015

PINNACLE RESOURCES, INC. MANUFACTURING FACILITY
Pine Bluff, Arkansas

SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY INFORMATION

Product Name: **SINGLE GRADE HEAVY DUTY MOTOR OIL.**
SAE Grades: 10W, 20W-20, 30, 40, 50 (10 TBN)

Product use: Lubricant, API Classification: CF/SM= 10W, 20W-20, CF-2/SM= 30, 40, 50

Manufactures Name: Pinnacle Resources, Inc.
 5504 Jefferson Parkway
 Pine Bluff, AR 71602

Emergency Assistance: 870-247-2315

Business Telephone No.: 870-247-2315

Product Assistance: 870-247-2315

SECTION 2: HAZARD IDENTIFICATION

United States (U.S.)
 According to OSHA 29 CFR 1910.1200 HCS

Classification of the mixture:
 OSHA HCS 2012 Not Classified
 Label Elements
 OSHA HCS 2012 No signal word

Hazard Statements No known significant effects or critical hazards

Precautionary Statements No precautionary phrases

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

	%Weight
P Single Grade HDMO, SAE 10W, 20W-20, 30, 40, 50	100
1 Refined and hydrotreated light distillate mineral oil	60-70
2 Refined and hydroprocessed heavy distillate/residual mineral base oil	25-50
3 Additive system containing proprietary formulated ingredients	3-8
4 Other minor additives	<1

SECTION 4: FIRST-AIDE MEASURES

Eye Contact - Flush with water for 15 minutes while holding eyelids open. If irritation persists, get medical attention.
 Skin Contact - Remove contaminated clothing and wipe excess off. Wash with soap and water or a waterless hand cleaner followed by soap and water. If irritation occurs, get medical attention.
 Inhalation - If overcome by vapor remove victim to fresh air, administer oxygen if breathing is difficult. Get medical attention.
 Ingestion - Do not induce vomiting. In general no treatment is necessary unless large quantities of product are ingested. However, get medical attention.
 Note to Physician - In general, Emesis Induction is unnecessary in high viscosity, low volatility products, I.E., most oils and greases.

SECTION 5: FIRE FIGHTING MEASURES

Flammable Limits /% Volume in Air
 Lower: N/AV Upper: N/AV

NFPA RATINGS- Health: 1 Flammability: 1 Reactivity: 0 Special: --
 NIOSH-HMIS RATINGS- Health: 1 Flammability: 1 Reactivity: 0

Extinguishing Media:
 Use water fog, foam, dry chemical or CO₂. Do not use a direct stream of water.

Fighting Procedures and Precautions:

Material will not burn unless preheated. Do not enter confined fire-space without full bunker gear (Helmet with face shield, bunker coats, gloves and rubber boots), including a positive-pressure NIOSH-Approved self-contained breathing apparatus. Cool fire exposed containers with water.

NFPA

National Fire Protection Association (U.S.A.)



Product will float and be reignited on surface of water. Special Fire

SECTION 6: ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:

May burn although not readily ignitable. Use cautious judgement when cleaning up large spills. ***Large Spills*** Wear respirator and protective clothing as appropriate. Shut off source of leak. If safe to do so, dike and contain. Remove with vacuum trucks or pump to storage salvage vessels. Soak up residue with an absorbent such as clay, sand, or other suitable materials; dispose of properly. Flush area with water to remove trace residue.

Small Spills Take up with an absorbent material and dispose of properly.

Waste Disposal: Place in an appropriate disposal facility in compliance with local regulations.

SECTION 7: HANDLING AND STORAGE

The health effects noted below are consistent with requirements under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Eye Contact: Lubricating oils are generally considered no more than minimally irritating to the eyes. Skin Contact: Lubricating oils are generally considered no more than mildly irritating to the skin. Prolonged and repeated contact may result in various skin disorders such as Dermatitis, Folliculitis or Oil Acne.

Inhalation: Inhalation of vapor (generated at high temperatures only) or oil mist from this product may result in mild irritation of the upper respiratory tract.

Ingestion: Lubricating oils are generally considered no more than slightly toxic if swallowed.

Signs and symptoms: Irritation as noted above.

Storage: Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Store and use only in equipment/containers designed for use with this product.

Aggravated Medical Conditions:

Preexisting skin and respiratory disorders may be aggravated by exposure to this product. The International Agency For Cancer Research has determined there is sufficient evidence for the carcinogenicity in experimental animals exposed by contact to used motor (crankcase) oil. Handling procedures and safety precautions in the MSDS should be followed to minimize exposure to the product as used lubricating oil in gasoline or diesel fueled internal combustion engines.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Minimize skin contact. Wash with soap and water before eating, drinking, smoking or using toilet facilities. Launder contaminated clothing before reuse, properly dispose of contaminated leather articles, including shoes that cannot be decontaminated. Store in a cool, dry place with adequate ventilation. Keep away from open flames and high temperatures.

Respiratory Protection:

If exposure may or does exceed occupational exposure limits (SECTION 2) use a NIOSH-Approved respirator to prevent overexposure. In accord with 29 CFR 1910.134 use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors and particulate.

Protective clothing:

Wear chemical resistant gloves and other protective clothing as required to minimize skin contact. Wear safety goggles to avoid eye contact. Test data from published literature and/or glove and clothing manufacturers indicate the best protection is provided by nitrile gloves.

Occupational Exposure Limits (estimated 8-hour workday):

OSHA 29		ACGIH	TLV/STEL	OTHER
Standards	PEL/TWA	TLV/TWA	TLV/STEL	
Oil Mist	5 Mg/M ³ *	5Mg/M ³ *	10 Mg/M ³ *	None

(*Oil Mist, Mineral)

SECTION 9: PHYSICAL/CHEMICAL PROPERTIES

Physical State: Liquid

Boiling Point: NA

Evaporation Rate: NA

Solubility In Water: Negligible

PH: NA

Auto Ignition Temperature: >320°C/608°F

Gravity: (H₂O=10.0) API @ 60°F: 27.9 - 24.9

Percent Volatile by Volume: Negligible

Appearance: Clear-Yellow brown

Vapor Pressure: <0.3kPa (0.1 @ 20°C [Est])

Upper/Lower Explosion/Flammability limits: 1-10 %V(based on Mineral Oil)

Melt Point: NA Pour Point: -25°F to 5°F

Vapor Density: (Air=1.0) >1.0

Odor: Mild Hydrocarbon

Electrical Conductivity: Not expected to be a static accumulator.

Flash Pt., COC: 400°F to 465°F

Viscosity@100°C, cSt: 6.5 - 18.7

Viscosity@ 40°C, cSt: 42 - 233

SECTION 10: REACTIVITY DATA

Stability: Stable

Hazardous Polymerization: Will Not Occur

Conditions and Materials to Avoid: Avoid heat, open flames and oxidizing materials.

Hazardous Decomposition Products:

Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulate and gases will evolve when this material undergoes pyrolysis or combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

Dermal LD50

>5.0 g/kg (Rabbit)

OSHA - Non Toxic

Based on similar material(s)

Oral LD50

>5.0 g/kg (Rat)

OSHA - Non Toxic

Based on similar material(s)

Carcinogenicity Classification (Highly Refined Mineral Oil/IP346<3%):

GHS/CLP=No carcinogenicity classification.

IARC 3=No carcinogenicity to humans.

ACGIH A4=Unclassified as a

NTP=No

IOSHA=No

SECTION 12: ECOLOGICAL INFORMATION

This product is classified as an oil under section 311 of the Clean Water Act. Spills entering (A) surface waters of (B) any water courses or sewer's-entering/leading to surface waters that cause a sheen must be reported to the nearest local Environmental Protection Agency Office.

SECTION 13: DISPOSAL CONSIDERATIONS

Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration. Proper characterization is recommended. The product is suitable for processing by an approved recycling facility or can be disposed of at an appropriate government waste disposal facility. Compliance with all appropriate Federal, State, and Local regulations should be satisfied at time of disposal. Base Oil Component is expected to be inherently biodegradable. The total mixture may be harmful to aquatic organisms.

SECTION 14: TRANSPORT INFORMATION

TDG Classification not regulated. Environmental transport classifications are indicate as non-hazard. DOT Identification Number: Not Regulated. IMDG: Not Regulated.

SECTION 15: REGULATORY INFORMATION

U.S. TSCA 8b INVENTORY:

Other TSCA Regulations:

SARA SECTIONS 301- 304:

SARA SECTION 311/312(Hazard):

SARA SECTION 313:

CERCLA HAZARDOUS SUBSTANCES:

FDA APPROVAL:

RCRA STATUS:

Under RCRA it is the

All components of this product are on the US TSCA Inventory.

None Known

This product does not contain greater than 1.0% of any chemical substance on the SARA Extremely Hazardous Substances List.

This product does not contain any chemical substance on SARA Hazard, Delayed Health Hazard List.

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

None Known

Not Applicable

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

SECTION 16: OTHER INFORMATION

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Date Prepared: July 24, 2015

PINNACLE RESOURCES, INC. MANUFACTURING FACILITY
Pine Bluff, Arkansas

SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY INFORMATION

Product Name: **SINGLE GRADE HEAVY DUTY MOTOR OIL.**
SAE Grades: 10W, 20W-20, 30, 40, 50 (10 TBN)

Product use: Lubricant, API Classification: CF/SM= 10W, 20W-20, CF-2/SM= 30, 40, 50

Manufactures Name: Pinnacle Resources, Inc.
 5504 Jefferson Parkway
 Pine Bluff, AR 71602

Emergency Assistance: 870-247-2315

Business Telephone No.: 870-247-2315

Product Assistance: 870-247-2315

SECTION 2: HAZARD IDENTIFICATION

United States (U.S.)
 According to OSHA 29 CFR 1910.1200 HCS

Classification of the mixture:
 OSHA HCS 2012 Not Classified
 Label Elements
 OSHA HCS 2012 No signal word

Hazard Statements No known significant effects or critical hazards

Precautionary Statements No precautionary phrases

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

P Single Grade HDMO, SAE 10W, 20W-20, 30, 40, 50
 1 Refined and hydrotreated light distillate mineral oil.
 2 Refined and hydroprocessed heavy distillate/residual mineral base oil.
 3 Additive system containing proprietary formulated ingredients
 4 Other minor additives.

%Weight
 100
 60-70
 25-50
 3-8
 <1

SECTION 4: FIRST-AID MEASURES

Eye Contact - Flush with water for 15 minutes while holding eyelids open. If irritation persists, get medical attention.
 Skin Contact - Remove contaminated clothing and wipe excess oil. Wash with soap and water or a waterless hand cleaner followed by soap and water. If irritation occurs, get medical attention.
 Inhalation - If overcome by vapor remove victim to fresh air; administer oxygen if breathing is difficult. Get medical attention.
 Ingestion - Do not induce vomiting. In general no treatment is necessary unless large quantities of product are ingested. However, get medical attention.
 Note to Physician - In general, Emesis induction is unnecessary in high viscosity, low volatility products, I.E., most oils and greases.

SECTION 5: FIRE FIGHTING MEASURES

Flammable limits % Volume in Air
 Lower: N/AV Upper: N/AV

NFPA RATINGS- Health: 1 Flammability: 1 Reactivity: 0 Special: -
 NFPA-HMIS RATINGS- Health: 1 Flammability: 1 Reactivity: 0

Extinguishing Media:
 Use water fog, foam, dry chemical or CO₂. Do not use a direct stream of water.

Fighting Procedures and Precautions:

Material will not burn unless preheated. Do not enter confined fire-space without full bunker gear (Helmet with face shield, bunker coats, gloves and rubber boots), including a positive-pressure NIOSH-Approved self-contained breathing apparatus. Cool fire exposed containers with water.

NFPA

National Fire Protection Association (U.S.A.)



Product will float and be reignited on surface of water. Special Fire

SECTION 6: ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:

May burn although not readily ignitable. Use cautious judgement when cleaning up large spills. ***Large Spills*** Wear respirator and protective clothing as appropriate. Shut off source of leak. If safe to do so, dike and contain. Remove with vacuum trucks or pump to storage salvage vessels. Soak up residue with an absorbent such as clay, sand, or other suitable materials; dispose of properly. Flush area with water to remove trace residue.

Small Spills Take up with an absorbent material and dispose of properly.

Waste Disposal: Place in an appropriate disposal facility in compliance with local regulations.

SECTION 7: HANDLING AND STORAGE

The health effects noted below are consistent with requirements under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Eye Contact: Lubricating oils are general considered no more than minimally irritating to the eyes. Skin Contact: Lubricating oils are generally considered no more than mildly irritating to the skin. Prolonged and repeated contact may result in various skin disorders such as Dermatitis, Folliculitis or Oil Acne.

Inhalation: Inhalation of vapor (generated at high temperatures only) or oil mist from this product may result in mild irritation of the upper respiratory tract.

Ingestion: Lubricating oils are generally considered no more than slightly toxic if swallowed.

Signs and symptoms: Irritation as noted above.

Storage: Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Store and use only in equipment/containers designed for use with this product.

Aggravated Medical Conditions:

Preexisting skin and respiratory disorders may be aggravated by exposure to this product. The International Agency For Cancer Research has determined there is sufficient evidence for the carcinogenicity in experimental animals exposed by contact to used motor (crankcase) oil. Handling procedures and safety precautions in the MSDS should be followed to minimize exposure to the product as used lubricating oil in gasoline or diesel fueled internal combustion engines.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Minimize skin contact. Wash with soap and water before eating, drinking, smoking or using toilet facilities. Launder contaminated clothing before reuse, properly dispose of contaminated leather articles, including shoes that cannot be decontaminated. Store in a cool, dry place with adequate ventilation. Keep away from open flames and high temperatures.

Respiratory Protection:

If exposure may or does exceed occupational exposure limits (SECTION 2) use a NIOSH-Approved respirator to prevent overexposure. In accord with 29 CFR 1910.134 use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors and particulate.

Protective clothing:

Wear chemical resistant gloves and other protective clothing as required to minimize skin contact. Wear safety goggles to avoid eye contact. Test data from published literature and/or glove and clothing manufacturers indicate the best protection is provided by nitrile gloves.

Occupational Exposure Limits (estimated 8-hour workday):

OSHA 29		ACGIH	TLV/STEL	OTHER
Standards	PEL/TWA	TLV/TWA		
Oil Mist	> 5 Mg/M ³	5Mg/M ³	10 Mg/M ³	None
	PEL/CEILING			
	None			

(*Oil Mist Mineral)

SECTION 9: PHYSICAL/CHEMICAL PROPERTIES

Physical State: Liquid

Boiling Point: NA

Evaporation Rate: NA

Solubility in Water: Negligible

pH: NA

Auto Ignition Temperature: >320 °C/608 °F

Gravity: (H₂O=10.0) API @ 60 °F: 27.9 - 24.9

Percent Volatile by Volume: Negligible

Appearance: Clear-Yellow brown

Vapor Pressure: <0.3kPa (0.1 @ 20 °C [Est])

Upper/Lower Explosion/Flammability limits: 1-10 %V(based on Mineral Oil)

Melt Point: NA Pour Point: -25 °F to 5 °F

Vapor Density: (Air=1.0) >1.0

Odor: Mild Hydrocarbon

Electrical Conductivity: Not expected to be a static accumulator.

Flash Pt., COC: 400 °F to 465 °F

Viscosity@ 100 °C, cSt: 6.5 - 18.7

Viscosity@ 40 °C, cSt: 42 - 233

SECTION 10: REACTIVITY DATA

Stability: Stable

Hazardous Polymerization: Will Not Occur

Conditions and Materials to Avoid: Avoid heat, open flames and oxidizing materials.

Hazardous Decomposition Products:

Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulate and gases will evolve when this material undergoes pyrolysis or combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

Dermal LD50

>5.0 g/kg (Rabbit)

OSHA - Non Toxic

Oral LD50

>5.0 g/kg (Rat)

OSHA - Non Toxic

Carcinogenicity Classification (Highly Refined Mineral Oil/IP346<3%):

GHS/CLP=No carcinogenicity classification.

Based on similar material(s)

Based on similar material(s)

IARC 3=No carcinogenicity to humans.

NTP=No

ACGIH A4=Unclassified as a
IOSHA=No

SECTION 12: ECOLOGICAL INFORMATION

This product is classified as an oil under section 311 of the Clean Water Act. Spills entering (A) surface waters of (B) any water courses or sewer's-entering/leading to surface waters that cause a sheen must be reported to the nearest local Environmental Protection Agency Office.

SECTION 13: DISPOSAL CONSIDERATIONS

Product is suitable for burning in an enclosed, controlled burner for fuel value or disposal by supervised incineration. Proper characterization is recommended. The product is suitable for processing by an approved recycling facility or can be disposed of at an appropriate government waste disposal facility. Compliance with all appropriate Federal, State, and Local regulations should be satisfied at time of disposal. Base Oil Component is expected to be inherently biodegradable. The total mixture may be harmful to aquatic organisms.

SECTION 14: TRANSPORT INFORMATION

TDG Classification not regulated
IMDG: Not Regulated

Environmental transport classifications are indicate as non-hazard. DOT Identification Number: Not Regulated.

SECTION 15: REGULATORY INFORMATION

U.S. TSCA 8b INVENTORY:

Other TSCA Regulations:

SARA SECTIONS 301- 304:

SARA SECTION 311/312(Hazard):

SARA SECTION 313:

CERCLA HAZARDOUS SUBSTANCES:

FDA APPROVAL:

RCRA STATUS:

Under RCRA it is the

All components of this product are on the US TSCA Inventory.

None Known

This product does not contain greater than 1.0% of any chemical substance on the SARA Extremely Hazardous

Substances List.

This product does not contain any chemical substance on SARA Hazard, Delayed Health Hazard List.

This product does not contain greater than 1.0% (greater than 0.1% for carcinogenic substance) of any chemical

(Toxic Chemicals) substances listed under SARA Section 313.

None Known

Not Applicable

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic.

responsibility of the product user to determine at the time of disposal, whether a material containing the product or

derived from the product should be classified as a hazardous waste.

SECTION 16: OTHER INFORMATION

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE AND IS BELIEVED TO BE CORRECT. HOWEVER, PINNACLE RESOURCES, INC. MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. PINNACLE RESOURCES, INC. ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

Date Prepared: July 24, 2015

PINNACLE RESOURCES, INC. MANUFACTURING FACILITY
Pine Bluff, Arkansas

MATERIAL SAFETY DATA SHEET

POLY-PLUS (LIQUID)

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME: POLY-PLUS (LIQUID)

CHEMICAL CLASS: Anionic polyacrylamide

APPLICATIONS: Oil well drilling fluid additive. Shale control agent.

EMERGENCY TELEPHONE: 281-561-1600

SUPPLIER: Supplied by a Business Unit of
M-I L.L.C.
P.O. Box 42842, Houston, Texas 77242-2842
See cover sheet for local supplier.

TELEPHONE: 281-561-1509

FAX: 281-561-7240

CONTACT PERSON: Sam Hoskin - Manager, Occupational Health

2. COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENT NAME:	CAS No.:	CONTENTS :	EPA RQ:	TPQ:
Petroleum distillates, hydrotreated light	64742-47-8	20-40 %		
Anionic polyacrylamide		60-80 %		

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

CAUTION! MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION. Avoid contact with eyes, skin and clothing. Avoid breathing airborne product. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

This product is a/an white liquid. Dike and contain spills. Keep out of sewers and waterways. Slippery when wet.

ACUTE EFFECTS:

INHALATION: May be irritating to the respiratory tract if inhaled.

INGESTION: May cause gastric distress, nausea and vomiting if ingested.

SKIN: May be irritating to the skin.

EYES: May be irritating to the eyes.

CHRONIC EFFECTS:

CARCINOGENICITY:

IARC: Not listed. OSHA: Not regulated. NTP: Not listed.

ROUTE OF ENTRY:

Inhalation. Skin and/or eye contact.

TARGET ORGANS:

Respiratory system, lungs. Skin. Eyes.

4. FIRST AID MEASURES

- GENERAL:** Persons seeking medical attention should carry a copy of this MSDS with them.
- INHALATION:** Move the exposed person to fresh air at once. Perform artificial respiration if breathing has stopped. Get medical attention.
- INGESTION:** Drink a couple of glasses water or milk. Do not give victim anything to drink if he is unconscious. Get medical attention.
- SKIN:** Wash skin thoroughly with soap and water. Remove contaminated clothing. Get medical attention if any discomfort continues.
- EYES:** Promptly wash eyes with lots of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.
-

5. FIRE FIGHTING MEASURES

FLASH POINT (°F):	>201	METHOD: PM Closed cup.
AUTO IGNITION TEMP. (°F):	N/D	
FLAMMABILITY LIMIT - LOWER(%):	N/D	
FLAMMABILITY LIMIT - UPPER(%):	N/D	

EXTINGUISHING MEDIA:

Carbon dioxide (CO₂). Dry chemicals. Foam. Water spray, fog or mist.

SPECIAL FIRE FIGHTING PROCEDURES:

Wear positive-pressure, self-contained breathing apparatus (SCBA) and protective fire fighting clothing (including fire fighting helmet, coat, pants, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

UNUSUAL FIRE & EXPLOSION HAZARDS:

No unusual fire or explosion hazards noted.

HAZARDOUS COMBUSTION PRODUCTS:

Irritating gases/vapors/fumes. Oxides of: Carbon. Nitrous gases (NO_x). and Hydrogen chloride (HCl).

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:

Wear proper personal protective equipment (see MSDS Section 8).

SPILL CLEAN-UP PROCEDURES:

Absorb in vermiculite, dry sand or earth and place into containers. Rinse area with water. Dike far ahead of larger spills for later disposal. Do not contaminate drainage or waterways.

7. HANDLING AND STORAGE

HANDLING PRECAUTIONS:

Ventilate well, avoid breathing vapors. Use approved respirator if air contamination is above accepted level. Wear full protective clothing for prolonged exposure and/or high concentrations. Eye wash and emergency shower must be available at the work place. Wash hands often and change clothing when needed.

STORAGE PRECAUTIONS:

Store at moderate temperatures in dry, well ventilated area. Keep in original container.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

INGREDIENT NAME:	CAS No.:	OSHA PEL:		ACGIH TLV:		OTHER:		UNITS:
		TWA:	STEL:	TWA:	STEL:	TWA:	STEL:	
Petroleum distillates, hydrotreated light	64742-47-8	5 *		5 *	10 *	2000 **		mg/m3
Anionic polyacrylamide								No std.

INGREDIENT COMMENTS:

* Exposure limits are for Oil mist, mineral. ** OSHA PEL for Petroleum Distillates, naphtha.

PROTECTIVE EQUIPMENT:**ENGINEERING CONTROLS:**

Use appropriate engineering controls such as, exhaust ventilation and process enclosure, to reduce air contamination and keep worker exposure below the applicable limits.

VENTILATION: Supply natural or mechanical ventilation adequate to exhaust airborne product and keep exposures below the applicable limits.

RESPIRATORS: If exposed to particulates/aerosols:
Use at least a NIOSH-approved N95 half-mask disposable or reusable particulate respirator. In work environments containing oil mist/aerosol use at least a NIOSH-approved P95 half-mask disposable or reusable particulate respirator.
If exposed to organic vapors:
Use a NIOSH/MSHA-approved organic vapor respirator.

PROTECTIVE GLOVES:

Chemical resistant gloves required for prolonged or repeated contact. Use protective gloves made of: Impermeable material. Such as, Neoprene, nitrile, polyethylene or PVC.

EYE PROTECTION:

Wear chemical safety goggles where eye exposure is reasonably probable.

PROTECTIVE CLOTHING:

Wear appropriate clothing to prevent repeated or prolonged skin contact.

HYGIENIC WORK PRACTICES:

Wash promptly with soap and water if skin becomes contaminated. Change work clothing daily if there is any possibility of contamination.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE:	Liquid.	
COLOR:	White.	
ODOR:	Hydrocarbon.	
SOLUBILITY DESCRIPTION:	Slightly soluble in water.	
SOLUBILITY VALUE (g/100g H₂O 68°F):	5	
BOILING POINT (°F, interval):	212	PRESSURE: 760mmHg
MELT/FREEZ. POINT (°F, interval):	32	
DENSITY/SPECIFIC GRAVITY (g/ml):	1.00 - 1.05	TEMPERATURE (°F): 68
VAPOR DENSITY (air=1):	N/D	
VAPOR PRESSURE:	>0.13	TEMPERATURE (°F): 68
EVAPORATION RATE:	N/D	REFERENCE:
pH-VALUE, DILUTED SOLUTION:	8.7	CONCENTRATION (%M): 1%

10. STABILITY AND REACTIVITY

STABILITY: Normally stable.

CONDITIONS TO AVOID:
Avoid heat.

HAZARDOUS POLYMERIZATION:
Will not polymerize.

POLYMERIZATION DESCRIPTION:
Not relevant.

MATERIALS TO AVOID:
Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS:
No specific hazardous decomposition products noted.

11. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:
No toxicological data is available for this product.

12. ECOLOGICAL INFORMATION

ACUTE AQUATIC TOXICITY:

This product passes the mysid shrimp toxicity test required by the U.S. Environmental Protection Agency (EPA) Region VI (Gulf of Mexico) NPDES Permit, which regulates offshore discharge of drilling fluids, when tested in a standard drilling fluid. Contact M-I's Environmental Affairs Department for more information.

This product is approved for use under the U.S. Environmental Protection Agency (EPA) Region IX (California) General NPDES Permit which regulates offshore discharges of drilling fluids. Contact M-I's Environmental Affairs Department for more information.

13. DISPOSAL CONSIDERATIONS

WASTE MANAGEMENT:

This product does not meet the criteria of a hazardous waste if discarded in its purchased form. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc, may render the resulting materials hazardous.

Empty containers retain residues. All labeled precautions must be observed.

DISPOSAL METHODS:

Recover and reclaim or recycle, if practical. Should this product become a waste, dispose of in a permitted industrial landfill. Ensure that containers are empty by RCRA criteria prior to disposal in a permitted industrial landfill.

14. TRANSPORT INFORMATION

GENERAL:	RQ = N/A
U.S. DOT:	
U.S. DOT CLASS:	Not regulated.
CANADIAN TRANSPORT:	
TDGR CLASS:	Not regulated.
SEA TRANSPORT:	
IMDG CLASS:	Not regulated.
AIR TRANSPORT:	
ICAO CLASS:	Not regulated.

15. REGULATORY INFORMATION

REGULATORY STATUS OF INGREDIENTS:

NAME:	CAS No:	TSCA:	CERCLA:	SARA 302:	SARA 313:	DSL(CAN):
Petroleum distillates, hydrotreated light	64742-47-8	Yes	No	No	No	Yes
Anionic polyacrylamide		Yes	No	No	No	Yes

US FEDERAL REGULATIONS:

WASTE CLASSIFICATION: Not a hazardous waste by U.S. RCRA criteria. See Section 13.

REGULATORY STATUS:

This Product or its components, if a mixture, is subject to following regulations (Not meant to be all inclusive - selected regulations represented):

SECTION 313: This product does not contain toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372.

SARA 311 Categories:

1: Immediate (Acute) Health Effects.

The components of this product are listed on or are exempt from the following international chemical registries:

TSCA (U.S.)

PROPOSITION 65: This product does not contain chemicals considered by the State of California's Safe Drinking Water and Toxic Enforcement Act of 1986 as causing cancer or reproductive toxicity, and for which warnings are now required.

STATE REGULATIONS:

STATE REGULATORY STATUS:

This product or its components, if a mixture, is subject to following regulations (Not meant to be all inclusive - selected regulations represented):

None.

CANADIAN REGULATIONS:

REGULATORY STATUS:

This Material Safety Data Sheet has been prepared in compliance with the Controlled Product Regulations.

Canadian WHMIS Classification: Not a Controlled Product.

16. OTHER INFORMATION

NPCA HMIS HAZARD INDEX:	1 Slight Hazard
FLAMMABILITY:	1 Slight Hazard
REACTIVITY:	1 Slight Hazard

NPCA HMIS PERS. PROTECT. INDEX: J - Splash Goggles, Gloves, Synthetic Apron, Dust and Vapor Respirator.

USER NOTES: N/A = Not applicable N/D = Not determined

PREPARED BY: Sam Hoskin

REVISION No./Repl. MSDS of: 2/June 3, 1998

MSDS STATUS: Approved.

DATE: June 27, 2001

DISCLAIMER:

MSDS furnished independent of product sale. While every effort has been made to accurately describe this product, some of the data are obtained from sources beyond our direct supervision. We cannot make any assertions as to its reliability or completeness; therefore, user may rely on it only at user's risk. We have made no effort to censor or conceal deleterious aspects of this product. Since we cannot anticipate or control the conditions under which this information and product may be used, we make no guarantee that the precautions we have suggested will be adequate for all individuals and/or situations. It is the obligation of each user of this product to comply with the requirements of all applicable laws regarding use and disposal of this product. Additional information will be furnished upon request to assist the user; however, no warranty, either expressed or implied, nor liability of any nature with respect to this product or to the data herein is made or incurred hereunder.



MATERIAL SAFETY DATA SHEET

MSDS No. 12502

Trade Name: PLATINUM DD*

Revision Date: 02/21/2011

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name: PLATINUM DD*

Chemical Family: Mixture

Product Use: Drilling fluid additive. Wetting agent.

Supplied by: M-I L.L.C.
P.O. Box 42842
Houston, TX 77242
www.miswaco.slb.com

Telephone Number: 281-561-1511

Emergency Telephone (24 hr.): 281-561-1600

Prepared by: Product Safety Group

Revision No. 3

HMIS Rating

Health: 2

Flammability: 1

Physical Hazard: 0

PPE: J

4=Severe, 3=Serious, 2=Moderate, 1=Slight, 0=Minimal Hazard. *Chronic effects - See Section 11. See Section 8 for Personal Protective Equipment recommendations.

2. HAZARDS IDENTIFICATION

Emergency Overview: Warning! May cause severe eye irritation. May cause skin and respiratory tract irritation.

Canadian Classification:

UN PIN No: Not regulated

WHMIS Class: D2B

Physical State: Liquid

Color: Light red

Odor: Citrus Lemon

Potential Health Effects:

Acute Effects

Eye Contact:

May cause severe eye irritation.

Skin Contact:

May be irritating to the skin. Prolonged or repeated contact may cause defatting of the skin and/or dermatitis (inflammation).

Inhalation:

Vapors or mists may be irritating to the respiratory tract.

Ingestion:

May cause gastric distress, nausea and vomiting if ingested.

Carcinogenicity & Chronic Effects:

See Section 11 - Toxicological Information.

Routes of Exposure:

Eyes. Dermal (skin) contact. Inhalation.

Target Organs/Medical

Eyes. Skin. Respiratory System.

Conditions Aggravated by Overexposure:

MATERIAL SAFETY DATA SHEET

Trade Name: PLATINUM DD*

MSDS No. 12502

Revision Date: 02/21/2011

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3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS No.	Wt. %	Comments:
Non-hazardous component		60 - 100	No comments.
Alkanolamide		1 - 5	No comments.
Tetrapotassium Pyrophosphate	7320-34-5	1 - 5	No comments.
Anionic surfactant		1 - 5	No comments.
Sulfate of ethoxylated alcohol		1 - 5	No comments.

4. FIRST AID MEASURES

Eye Contact: Promptly wash eyes with lots of water while lifting eye lids. Look for and remove contact lenses. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

Skin Contact: Wash skin thoroughly with soap and water. Remove contaminated clothing and launder before reuse. Get medical attention if any discomfort continues.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion: Dilute with 2 - 3 glasses of water or milk, if conscious. Never give anything by mouth to an unconscious person. If signs of irritation or toxicity occur seek medical attention.

General notes: Persons seeking medical attention should carry a copy of this MSDS with them.

5. FIRE FIGHTING MEASURES

Flammable Properties

Flash Point: F (C): >200F (93C)
Flash Point Method: Estimated
Flammable Limits in Air - Lower (%): ND
Flammable Limits in Air - Upper (%): ND
Autoignition Temperature: F (C): ND
Flammability Class: IIIB
Other Flammable Properties: ND
Extinguishing Media: Water fog, carbon dioxide, foam, dry chemical.

Protection Of Fire-Fighters:

Special Fire-Fighting Procedures: Do not enter fire area without proper personal protective equipment, including NIOSH/MSHA approved self-contained breathing apparatus. Evacuate area and fight fire from a safe distance. Water spray may be used to keep fire-exposed containers cool. Keep water run off out of sewers and waterways.

Hazardous Combustion Products: Oxides of Carbon. Nitrogen. Phosphorous. Potassium. Sulfur.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Use personal protective equipment identified in Section 8.

MATERIAL SAFETY DATA SHEET

MSDS No. 12502

Trade Name: PLATINUM DD*

Revision Date: 02/21/2011

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Spill Procedures:

Evacuate the spill area with the exception of the spill response team. Keep personnel removed and upwind of spill. Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Shut off leak if it can be done safely. Contain spilled material. Do not allow spilled material to enter sewers, storm drains or surface waters. Absorb in vermiculite, dry sand or earth. Place into containers for disposal.

Environmental Precautions:

Waste must be disposed of in accordance with federal, state and local laws.

7. HANDLING AND STORAGE

Handling:

Put on appropriate personal protective equipment. Avoid contact with skin and eyes. Avoid breathing vapors or spray mists. Use only in a well ventilated area. Wash thoroughly after handling.

Storage:

Store in dry, well-ventilated area. Keep container closed. Keep away from heat, sparks and flames. Store away from incompatibles. Follow safe warehousing practices regarding palletizing, banding, shrink-wrapping and/or stacking.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits (TLV & PEL - 8H TWA):

Ingredient	CAS No.	Wt. %	ACGIH TLV	OSHA PEL	Other	Notes
Non-hazardous component		60 - 100	NA	NA	NA	None
Alkanolamide		1 - 5	NA	NA	NA	None
Tetrapotassium Pyrophosphate	7320-34-5	1 - 5	NA	NA	NA	(1)
Anionic surfactant		1 - 5	NA	NA	NA	None
Sulfate of ethoxylated alcohol		1 - 5	NA	NA	NA	None

Notes

(1) Control as an ACGIH particulate not otherwise specified (PNOS): 10 mg/m³ (Inhalable); 3 mg/m³ (Respirable) and an OSHA particulate not otherwise regulated (PNOR): 15 mg/m³ (Total); 5 mg/m³ (Respirable).

Engineering Controls: Local exhaust ventilation as necessary to maintain exposures to within applicable limits.

Personal Protection Equipment

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazards present and the risk of exposure to those hazards. The PPE recommendations below are based on our assessment of the chemical hazards associated with this product. The risk of exposure and need for respiratory protection will vary from workplace to workplace and should be assessed by the user.

Eye/Face Protection:

Wear chemical safety goggles.

Skin Protection:

Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear chemical resistant gloves such as nitrile or neoprene.

MATERIAL SAFETY DATA SHEET

Trade Name: PLATINUM DD*

MSDS No. 12502

Revision Date: 02/21/2011

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Respiratory Protection:

All respiratory protection equipment should be used within a comprehensive respiratory protection program that meets the requirements of 29 CFR 1910.134 (U.S. OSHA Respiratory Protection Standard) or local equivalent.

If exposed to airborne mist/aerosol of this product, use at least a NIOSH-approved N95 half-mask disposable or re-usable particulate respirator. In work environments containing oil mist/aerosol, use at least a NIOSH-approved P95 half-mask disposable or reuseable particulate respirator.

General Hygiene Considerations: Work clothes should be washed separately at the end of each work day. Disposable clothing should be discarded, if contaminated with product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	Light red
Odor:	Citrus Lemon
Physical State:	Liquid
pH:	9.5
Specific Gravity (H ₂ O = 1):	1.038
Solubility (Water):	Soluble
Flash Point: F (C):	>200F (93C)
Melting/Freezing Point:	ND
Boiling Point:	212F (100C)
Vapor Pressure:	ND
Vapor Density (Air=1):	ND
Evaporation Rate:	<1
Odor Threshold(s):	ND

10. STABILITY AND REACTIVITY

Chemical Stability:	Stable
Conditions to Avoid:	Keep away from heat, sparks and flame.
Materials to Avoid:	Oxidizers.
Hazardous Decomposition Products:	For thermal decomposition products, see Section 5.
Hazardous Polymerization	Will not occur

11. TOXICOLOGICAL INFORMATION

Component Toxicological Data: Any adverse component toxicological effects are listed below. If no effects are listed, no such data were found.

Ingredient	CAS No.	Acute Data
Alkanolamide		Oral LD50: 12,400 ul/kg (rat); Eye Draize Test 100 ul: Severe (rabbit); Skin Draize Test 300 ul: Moderate (rabbit)
Tetrapotassium Pyrophosphate	7320-34-5	Oral LD50: >1000 mg/kg (rat); Oral LDLo: 4640 mg/kg (rat); Dermal LD50: >4640 mg/kg (rabbit); Inhalation LC50 4H: >1.10 mg/l (rat)
Anionic surfactant		Oral LD50: 438 mg/kg (rat)

MATERIAL SAFETY DATA SHEET

MSDS No. 12502

Trade Name: PLATINUM DD*

Revision Date: 02/21/2011

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Ingredient	Component Toxicological Summary
Alkanolamide	In a National Toxicology Program (NTP) 2 year carcinogenicity study of this alkanolamide, male and female rats and mice were dermally exposed at 0 - 200 mg/kg and 0 - 100 mg/kg, respectively. There was no clear evidence of carcinogenicity in rats. There was clear evidence of carcinogenicity in mice. Mutagenicity tests demonstrated mixed results. (NTP)

Product Toxicological Information:

No toxicological data is available for this product.

12. ECOLOGICAL INFORMATION

Component Ecotoxicity Data: Component ecotoxicity data are listed below. If no data are listed, none were found in the component review.

Ingredient	CAS No.	Data
Alkanolamide		LC50 96H: 3.6 mg/l (Brachydanio rerio); EC50 24H: 4.2 mg/l (Daphnia magna)
Tetrapotassium Pyrophosphate	7320-34-5	LC50 96H: >100 mg/l (rainbow trout); LC50 96H: >100 mg/l (Mysid shrimp); EC50 48H: >100 mg/l (Daphnia magna)
Anionic surfactant		LC50 96H: 10.8 mg/l (static) (Oncorhynchus mykiss (rainbow trout)); LC50 96H: 6.97 mg/l (catfish)

Product Ecotoxicity Data:

Biodegradation:

Bioaccumulation:

Octanol/Water Partition

Coefficient:

Contact M-I Environmental Affairs Department for available product ecotoxicity data.

ND

ND

ND

13. DISPOSAL CONSIDERATIONS

Waste Classification:

ND

Waste Management:

Under U.S. Environmental Protection Agency (EPA) Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user to determine at the time of disposal, whether the product meets RCRA criteria for the hazardous waste. This is because product uses, transformations, mixtures, processes, etc., may render the resulting materials hazardous. Empty containers retain residues. All labeled precautions must be observed.

Disposal Method:

Recover and reclaim or recycle, if practical. Should this product become a waste, dispose of in a permitted industrial landfill. Ensure that the containers are empty by the RCRA criteria prior to disposal in a permitted industrial landfill.

14. TRANSPORT INFORMATION

U.S. DOT

Shipping Description:

Not regulated for transportation by DOT, TDG, IMDG, ICAO/IATA.

Canada TDG Shipping Description:

Not regulated.

UN PIN No:

Not regulated.

IMDG Shipping Description:

Not regulated.

ICAO/IATA Shipping Description:

Not regulated.

MATERIAL SAFETY DATA SHEET

MSDS No. 12502

Trade Name: PLATINUM DD*

Revision Date: 02/21/2011

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15. REGULATORY INFORMATION

U.S. Federal and State Regulations

SARA 311/312 Hazard Categories: Immediate (acute) health hazard.

SARA 302/304, 313; CERCLA RQ, Note: If no components are listed below, this product is not subject to the referenced California Proposition 65: SARA and CERCLA regulations and is not known to contain a Proposition 65 listed chemical at a level that is expected to pose a significant risk under anticipated use conditions.

Ingredient	SARA 302 / TPQs	SARA 313	CERCLA RQ	CA 65 Cancer	CA 65 Dev. Tox.	CA 65 Repro. F	CA 65 Repro. M
Anionic surfactant	---	---	1000 lb	---	---	---	---

International Chemical Inventories

Australia AICS - Components are listed or exempt from listing.
Canada DSL - Components are listed or exempt from listing.
China Inventory - Components are listed or exempt from listing.
European Union EINECS/ELINCS - Components are listed or exempt from listing.
Japan METI ENCS - Components are listed or exempt from listing.
Korea TCCL ECL - Components are listed or exempt from listing.
New Zealand - ND.
Philippine PICCS - Components are listed or exempt from listing.
U.S. TSCA - Components are listed or exempt from listing.
U.S. TSCA - No components are subject to TSCA 12(b) export notification requirements.

Canadian Classification:

Controlled Products Regulations Statement: This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS Class: D2B

16. OTHER INFORMATION

The following sections have been revised: 1, 5, 8, 15, 16.

NA - Not Applicable, ND - Not Determined.

*A mark of M-I L.L.C.

Disclaimer:

MSDS furnished independent of product sale. While every effort has been made to accurately describe this product, some of the data are obtained from sources beyond our direct supervision. We can not make any assertions as to its reliability or completeness, therefore, user may rely on it only at user's risk. We have made no effort to censor or conceal deleterious aspects of this product. Since we cannot anticipate or control the conditions under which this information and product may be used, we make no guarantee that the precautions we have suggested will be adequate for all individuals and/or situations. It is the obligation of each user of this product to comply with the requirements of all applicable laws regarding use and disposal of this product. Additional information will be furnished upon request to assist the user; however, no warranty, either expressed or implied, nor liability of any nature with respect to this product or to the data herein is made or incurred hereunder.

**AMERICAN COLLOID COMPANY**

One North Arlington • 1500 West Shure Drive
Arlington Heights, Illinois 60004-7803 • USA
Tel. (847) 392-4600 • Fax. (847) 577-5560

MATERIAL SAFETY DATA SHEET

May be used to comply with OSHA's Hazard Communication Standard,
29 CFR 1910.1200. Standard must be consulted for specific requirements.

20001 / 20001

PRODUCT NAME: SUPER-LIG (LIGNITE)

Page 1 of 4

Section I MANUFACTURER'S INFORMATION**Manufacturer's Name and Address:**

American Colloid Company
One North Arlington
1500 West Shure Drive
Arlington Heights, Illinois 60004

Date Prepared: April 28, 2005**Telephone:** 847-392-4600 / **Fax:** 847-577-5560**EMERGENCY CONTACT:** CHEMTREC 800-424-9300**E-mail:** www.colloid.com**Section II HAZARDOUS INGREDIENTS / IDENTITY INFORMATION****PRODUCT IDENTIFICATION:****Chemical Name:** Leonardite, naturally occurring carbonaceous mineral**Chemical Family:** North Dakota Crude Humic Acids**CAS No:** 1415-93-6 (Humic Acid is on the TSCA inventory)**NFPA/IMIS:** Health - 1*, Fire - 1, Reactivity - 0, Specific Hazard - See Section VI.**DOT Class:** Not Regulated**HAZARDOUS COMPONENTS:**

(Specific Chemical Identity: Common Name(s))	OSHA PEL (TWA)	ACGIH TLV (TWA)	NIOSH REL (TWA)	% (optional)
Quartz: CAS# 14808-60-7 (naturally occurring constituent)	0.1 mg/m ³	50 µg/m ³	50 µg/m ³	—
Respirable Coal Dust:	2.4 mg/m ³	0.9 mg/m ³	1.0 mg/m ³	—

WARNING: Chronic health effect possible - this product contains a small amount of respirable quartz (silica). A single exposure may not result in serious adverse effects but excessive occupational, uncontrolled inhalation of dust may cause lung injury/disease, silicosis, with symptoms of shortness of breath and reduced pulmonary function.

OSHA PEL - OSHA Permissible Exposure Limit, 8 hour Time-Weighted Average**ACGIH TLV** - American Conference of Governmental Industrial Hygienists Threshold Limit Value, 8 hr. TWA, 40 hr. week**NIOSH REL** - National Institute for Occupational Safety and Health, Recommended Exposure Limit, 10 hr. TWA, 40 hr. week**Section III PHYSICAL/CHEMICAL CHARACTERISTICS**

Boiling Point	- Not Applicable	Specific Gravity (Water = 1.0)	- 1.5
Vapor Pressure (mm Hg.)	- Not Applicable	Melting Point	- Not Applicable
Vapor Density (Air = 1.0)	- Not Applicable	Evaporation Rate (Butyl Acetate = 1.0)	- Not Applicable
pH (2 g/100 ml H₂O)	- 3.5 - 5.0	Solubility in Water	- Slight
Appearance and Odor	- Dark brown to black powder, almost odorless		

**AMERICAN COLLOID COMPANY**

One North Arlington • 1500 West Shure Drive
Arlington Heights, Illinois 60004-7803 • USA
Tel. (847) 392-4600 • Fax. (847) 577-5560

20001 / 20001

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PRODUCT NAME: SUPER-LIG (LIGNITE)

Section IV FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used)	- > 400° F Cleveland Cup Method		
Extinguishing Media	- water, fog, foam, rock dust		
Flammable Limits	- Not Available	LEL - Not Available	UEL - Not Available
Special Fire Fighting Procedure	- Do not stir up dust with hose streams		
Unusual Fire/Explosion Hazards	- May explode if dust is suspended in air and ignition source is present		

Section V REACTIVITY DATA

Stability: Stable	Conditions to Avoid - None Known
Incompatibility (Materials to Avoid): None Known	
Hazardous Decomposition or By-products: When burned: CO, CO ₂ , SO ₂ , hydrocarbons (including coal tar pitch and unknowns) may be detected.	
Hazardous Polymerization: Will Not Occur	Conditions to Avoid: None Known

Section VI HEALTH HAZARD DATA

Route(s) of Entry:	Inhalation? Yes	Skin? No	Ingestion? No
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Health Hazards (Acute and Chronic): May cause delayed respiratory disease if dust inhaled over a prolonged period of time.

Inhalation: Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may cause irritation of the nose, throat and respiratory passages. Inhalation of dust may have the following serious chronic health effects:

Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

Cancer Status: The International Agency for Research on Cancer has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1 - carcinogenic to humans). Refer to ARC Monograph 68, Silica, Some Silicates and Organic Fibers (published in June 1997) in conjunction with the use of these materials.

The National Toxicology Program classifies respirable crystalline silica as a known human carcinogen. For further information See: "Adverse Effects of Crystalline Silica Exposure" published by the American Thoracic Society Medical Section of the American Lung Association, American Journal of Respiratory and Critical Care Medicine, Volume 155, page 761-765, 1997.

Skin Contact: No adverse effects expected

Eye Contact: Contact may cause mechanical irritation and possible injury

Ingestion: No adverse effects expected for normal, incidental ingestion

Chronic Health Effects: See "Inhalation" subsection above with respect to silicosis, cancer status and other data with possible relevance to human health.

Signs and Symptoms of Exposure: There are generally no signs or symptoms of exposure to crystalline silica. See "Inhalation" subsection above for symptoms of silicosis.

Medical Conditions Generally Aggravated by Exposure: Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation should not be exposed to crystalline silica dust.

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PRODUCT NAME: SUPER-LIG (LIGNITE)

Section VI HEALTH HAZARD DATA (continued)

Emergency and First Aid Procedures:

Eye Contact – Flush the eyes immediately with large amounts of water, lifting the upper and lower lids occasionally. If irritation persists or for imbedded foreign body, get immediate medical attention.

Gross Inhalation – Remove to fresh air. If breathing has stopped, perform artificial respiration. If breathing is difficult have qualified personnel administer oxygen. Get prompt medical attention.

Skin Contact – No first aid should be needed since this product does not affect the skin. Wash exposed skin with soap and water before breaks and at the end of the shift.

Ingestion – If large amounts are swallowed, get immediate medical attention.

Section VII PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material is Released or Spilled: Vacuum if possible to avoid generating airborne dust. Avoid breathing dust. Wear an approved respirator. Avoid adding water; product will become slippery when wet. Waste Disposal Method – Follow federal, state and local regulations for solid waste.

Handling and Storing Precautions: Do not breathe dust. Use normal precautions against bag breakage or spills of bulk material. Avoid creation of respirable dust. Use good housekeeping in storage and use areas to prevent accumulation of dust in work areas. Use adequate ventilation and dust collection. Maintain and use proper, clean respiratory equipment. Launder clothing that has become dusty. Empty containers (bags, bulk containers, storage tanks, etc.) retain silica residue and must be handled in accordance with provisions of this Material Safety Data Sheet. Warn and Train employees in accordance with state and federal regulations.

WARN YOUR EMPLOYEES (AND YOUR CUSTOMERS – USERS IN CASE OF RESALE) BY POSTING AND OTHER MEANS OF THE HAZARDS AND OSHA PRECAUTIONS TO BE USED. PROVIDE TRAINING FOR YOUR EMPLOYEES ABOUT OSHA PRECAUTIONS.

Section VIII CONTROL MEASURES

Respiratory Protection: Use appropriate respiratory protection for respirable particulate based on consideration of airborne workplace concentration and duration of exposure arising from intended end use. Refer to the most recent standards of ANSI (Z88.2) OSHA (29 CFR 1910.134), MSHA (30 CFR Parts 56 and 57) and NIOSH Respirator Decision Logic.

Ventilation: Use local exhaust as required to maintain exposures below applicable occupational exposure limits (*See Section II*). See also ACGIH "Industrial Ventilation – A Manual for Recommend Practice", (*current edition*).

Section VIII CONTROL MEASURES (continued)

Protective Gloves: Recommended.

Eye Protection: Safety glasses or goggles recommended.

Other Protective Clothing or Equipment: As appropriate for work environment. Dusty clothing should be laundered before reuse.

Transportation Data / U.S. DOT Hazard Classification

Proper Shipping Name:	Not regulated
Hazard Class/Packing Group:	N/A
DOT Packaging Requirements:	N/A
Exceptions:	N/A

Technical Name:	N/A
UN Number:	N/A
Labels Required:	None

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PRODUCT NAME: SUPER-LIG (LIGNITE)

Section IX OTHER REGULATORY INFORMATION

SARA 311/312: Hazard Categories for SARA Section 311/312 Reporting: Chronic Health

SARA 313: This product contains the following chemicals subject to annual release reporting requirements under the SARA section 313 (40 CFR 372): None

CERCLA Section 103 Reportable Quantity: None

California Proposition 65: This product contains the following substances known to the state of California to cause cancer and/or reproductive harm: crystalline silica (respirable).

Toxic Substances Control Act: All of the components of this product are listed on the EPA TSCA Inventory or are exempt from notification requirements.

European Inventory of Commercial Chemical Substances: All the components of this product are listed on the EINECS Inventory or exempt from notification requirements. (The EINECS number for Quartz: 231-545-5)

Canadian Environmental Protection Act: All the components of this product are listed on the Canadian Domestic Substances List or exempt from notification requirements.

Canadian WHMIS Classification: This product contains crystalline silica (respirable), classified as a Class D, Division 2, Subdivision A substance.

Japan MITI: All the components of this product are existing chemical substances as defined in the Chemical Substance Control Law

Australian Inventory of Chemical Substances: All the components of this product are listed on the AICS Inventory or exempt from notification requirements.

Canadian WHMIS Classification: This product contains crystalline silica (respirable), classified as a Class D, Division 2, Subdivision A substance.

REFERENCES:

Registry for Toxic Effects of Chemical Substances (RTECS), 1995.

Patty's Industrial Hygiene and Toxicology.

NTP Ninth Annual Report on Carcinogens, 1997.

IARC Monograph Volume 68, Silica, Some Silicates and Organic Fibers, 1997.

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, American Colloid Company cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

SAPP



Univar USA Inc Material Safety Data Sheet

MUD-CO SERVICE INC
279 NORTHEAST 70TH AVE
TURN DIRECTLY NORTH OF
PRATT
KS 67124

MSDS No:
Version No:
Order No:

Univar USA Inc., 17425 NE Union Hill Rd., Redmond WA 98052
(425) 889 3400

Emergency Assistance

For emergency assistance involving chemicals call
Chemtrec - (800) 424-9300

 <p>ICL Performance Products LP</p>	<h2>Material Safety Data Sheet</h2>	 <p>RESPONSIBLE CARE® OUR COMMITMENT TO SUSTAINABILITY</p>
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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Identification

Product Name:	SODIUM ACID PYROPHOSPHATE
Reference Number:	AST10051
Date:	March 11, 2013
Synonyms:	SAPP; Pyrophosphate Acid, Disodium Salt; Disodium Dihydrogen Pyrophosphate

Use of substance or preparation

Food ingredient, buffer, sequester, deflocculate, peptizing agent in cheese and meat products, dairy cleaners, drilling mud, metal cleaning and phosphatizing.

Company/Undertaking Identification

ICL PERFORMANCE PRODUCTS LP
622 Emerson Road - Suite 500
St. Louis, Missouri 63141

Emergency telephone: In USA call CHEMTREC: 1-800-424-9300
In Canada call CANUTEC: 1-613-996-6666

General Information: 1-800-244-6169 (Worldwide)

2. HAZARDS IDENTIFICATION

Classification of the substance/preparation

GHS



Warning

H319 Causes serious eye irritation.

Prevention:

P280 Wear protective gloves/protective clothing/eye protection/face protection.
P264 Wash thoroughly after handling.

Response:

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/attention.

ICL Performance Products LP Material Safety Data Sheet

Material: Sodium Acid Pyrophosphate

Reference No.: AST10051

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March 11, 2013

Product manufactured and packaged after December 1, 2010 has GHS hazard identification and classification labels reflecting results from recent eye irritation tests, however there may still be product on the market with the former classification on the packaging.

Former EU classification:

Xi - Irritant

R36 Irritating to eyes

S25 Avoid contact with eyes

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

3. COMPOSITION/INFORMATION ON INGREDIENTS**Composition**

<u>Substance</u>	<u>CAS No.</u>	<u>EINECS No</u>	<u>%w/w</u>
Sodium Acid Pyrophosphate	7758-16-9	231-835-0	100

4. FIRST AID MEASURES**General**

Treatment is symptomatic and supportive.

Eye contact

Rinse immediately with plenty of water. If easy to do, remove any contact lenses. Get medical attention if irritation occurs and persists. Remove contaminated clothing. Remove material from eyes, skin and clothing. Wash clothing before reuse.

Skin contact

Remove this material with plenty of soap and water. Contact with the dry material may cause drying, or chapping, redness or burning of the skin.

Inhalation

Remove to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Inhalation of the dust may cause coughing and sneezing.

Ingestion

If swallowed, do NOT induce vomiting. Rinse mouth with plenty of water and get medical attention. Contact a Poison Control Center. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES**Extinguishing media**

Non-combustible. No special requirement.

Unsuitable extinguishing media

Non-combustible. No special requirement.

ICL Performance Products LP Material Safety Data Sheet

Material: Sodium Acid Pyrophosphate

Reference No.: AST10051

Page 3 of 7
March 11, 2013**Exposure hazards**

No special considerations.

Protective equipment

As a general precaution, firefighters, and others exposed, wear self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions**

No special requirement.

Environmental precautions

Small quantities: Presents no environmental problems.

Large quantities: As general precaution, avoid discharge into the environment.

Methods for cleaning up

Sweep, scoop or vacuum and place into containers for disposal. Flush area with water.

Refer to Section 13 for disposal information and Sections 14 and 15 for reportable quantity information.

7. HANDLING AND STORAGE**Handling**Avoid breathing dust.
Keep container closed.
Use only with adequate ventilation.Avoid contact with eyes and skin.
Wash thoroughly after handling.
Do not taste or swallow.**Engineering measures**

Provide natural or mechanical ventilation to minimize exposure. The use of local mechanical exhaust ventilation is preferred at sources of air contamination such as open process equipment. Consult National Fire Protection Association (NFPA) Standard 91 for design of exhaust systems.

Storage

Store in a cool, dry place to maintain product performance. Emptied container retains product residue. Observe all labeled safeguards until container is cleaned, reconditioned, or destroyed. The reuse of this material's container for non-industrial purposes is prohibited and any reuse must be in consideration of the data provided in this MSDS.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Occupational exposure limit**

OSHA and ACGIH have not established specific exposure limits for this material. However, OSHA and ACGIH have established limits for particulates not otherwise regulated (PNOR) and particulates not otherwise classified (PNOC) which are the least stringent exposure limits applicable to dusts.

ICL Performance Products LP Material Safety Data Sheet

Material: Sodium Acid Pyrophosphate

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March 11, 2013

ACGIH TLV 10 mg/m³ (inhalable) 8-hr TWA, 3 mg/m³ (respirable) 8-hr TWA
OSHA PEL 15 mg/m³ (total dust) 8-hr TWA, 5 mg/m³ (respirable) 8-hr TWA

Components referred to herein may be regulated by specific Canadian provincial legislation.
Please refer to exposure limits legislated for the province in which the substance will be used.

Respiratory protection

Avoid breathing dust. In case of insufficient ventilation, wear suitable respiratory equipment. Use NIOSH/MSHA approved respiratory protection equipment when airborne exposure limits are exceeded. Consult the respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Use approved respiratory protective equipment as described in the U.S. OSHA 29 CFR 1910.134 or European Standard EN149.

Hand/skin protection

Wearing protective clothes is recommended; wash hand and contaminated skin thoroughly after handling.

Eye protection

Wear appropriate protective eyeglasses or chemical safety goggles as described in the U.S. OSHA 29 CFR 1910.133 or European Standard EN 166.

9. PHYSICAL AND CHEMICAL PROPERTIES**General Information**

Chemical Formula:	Na ₂ H ₂ P ₂ O ₇
Form	Powder, free flowing
Color	White
Odor	Odorless

Important health, safety and environmental information

pH (1% solution)	4.0 – 5.0
Melting point:	Decomposes between 250 – 275 °C (482-527 °F) to polyphosphates, which melt between 600 - 650 °C (1112-1202 °F)
Bulk density:	0.8 – 1.33 g/cc
Water solubility (g/100g H ₂ O):	5 @ 0 °C 12.5 @ 25 °C 20 @ 50 °C 65 @ 75 °C

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

10. STABILITY AND REACTIVITY

Product is stable under normal conditions of storage and handling.

Conditions to avoid

None known.

ICL Performance Products LP Material Safety Data Sheet
Material: Sodium Acid Pyrophosphate
Reference No.: AST10051

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March 11, 2013

Materials to avoid

Strong mineral acids.

Hazardous decomposition products

None known.

11. TOXICOLOGICAL INFORMATION

This material has been defined as a hazardous chemical under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

The dry powder may cause foreign body irritation in some individuals. Prolonged contact with the dry powder may cause drying or chapping of the skin. Workers exposed to dust of this product reported moderate irritation of the nose and throat, with five of the eighteen workers reporting nasal stuffiness and nosebleeds. High dust concentrations were reported to cause mild eye and skin irritation.

Laboratory data

Data from ICL Performance Products LP single-dose (acute) animal studies with this material are given below:

Oral - rat LD₅₀ - 3,600 mg/kg; slightly toxic
Dermal - rabbit LD₅₀: > 7,940 mg/kg; practically non-toxic
Eye Irritation - rabbit: 66.5/110; severely irritating
Skin Irritation - rabbit: 0.7/8.0; slightly irritating
Inhalation - LC₅₀>0.58 mg/l, 4 hr (rat) - maximum attainable concentration

No birth defects were reported in mice, hamsters, or rabbits given sodium acid pyrophosphate during pregnancy. No adverse genetic effects were reported in standard tests using animals or bacterial and yeast cells.

12. ECOLOGICAL INFORMATION

Environmental Toxicity

ICL Performance Products LP has not conducted environmental toxicity studies with this product.

Environmental Fate

Inorganic compounds in contact with the soil, sub-surface or surface waters may be taken up by plants and utilized as essential nutrients. Phosphates may also form precipitates, usually with calcium or magnesium. The resultant compounds are insoluble in water and become a part of the soil or sediment. The term biodegradability, as such, is not applicable to inorganic compounds.

13. DISPOSAL CONSIDERATIONS

European waste catalog number

The data provided in this section is for information only. Please apply the appropriate classification for your waste.

16 03 03 inorganic wastes containing dangerous substances

Disposal Considerations

ICL Performance Products LP Material Safety Data Sheet

Material: Sodium Acid Pyrophosphate

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This material when discarded is not a hazardous waste as that term is defined by the U.S. Resource, Conservation and Recovery Act (RCRA), 40 CFR 261. Dry material may be land filled or recycled in accordance with local, state and federal regulations. Consult your attorney or appropriate regulatory officials for information on such disposal.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

Road/Rail, Sea and Air

IMDG/UN	Not regulated for transport
ICAO/IATA	Not regulated for transport
RID/ADR	Not regulated for transport
Canadian TDG	Not regulated for transport
U.S. DOT	Not regulated for transport

15. REGULATORY INFORMATIONEC label

Hazard Symbol:	Xi – Irritant
R36	Irritating to Eyes
S25	Avoid contact with eyes
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.

Chemical Inventory

USA TSCA:	Listed
Canada DSL:	Listed
EC:	Listed

Additional Information

Germany: WGK = 1

WHMIS Classification: D2 (B) – Materials Causing Other Toxic Effects

SARA Hazard Notification

Hazard Categories Under Title III Rules (40 CFR 370):	Immediate
Section 302 Extremely Hazardous Substances:	None
Section 313 Toxic Chemical(s):	None

CERCLA Reportable Quantity:	Not applicable
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This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation and the MSDS contains all the information required by the Canadian Controlled Products Regulation.

16. OTHER INFORMATION

	<u>Health</u>	<u>Fire</u>	<u>Reactivity</u>	<u>Additional Information</u>
Suggested NFPA Rating	2	0	0	
Suggested HMIS Rating	2	0	0	J
				J = Splash goggles, gloves, synthetic apron, dust & vapor respirator

ICL Performance Products LP Material Safety Data Sheet

Material: Sodium Acid Pyrophosphate

Reference No.: AST10051

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March 11, 2013

Reason for revision: Revised section 3.

Supersedes MSDS dated: December 13, 2010

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AST10051.4060.doc

Univar USA Inc Material Safety Data Sheet

For Additional Information contact MSDS Coordinator during business hours, Pacific time: (425) 889-3400

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This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process



Soda Ash / Sodium Carbonate

Revision Date: 1/18/2016

SAFETY DATA SHEET

1 PRODUCT AND COMPANY IDENTIFICATION

1.1 PRODUCT IDENTIFIERS

Product Name: Soda Ash or Sodium Carbonate
 Chemical Name: Sodium Carbonate
 Synonyms / Common Names: Carbonic Acid Sodium Salt
 Registration Number REACH: 01-2119485498-19-0011
 Product Type REACH: Substance/mono-constituent
 CAS Number: 497-19-8
 EC Index Number: 011-005-00-2
 EC Number: 207-838-8
 RTECS Number: VZ4050000

1.2 RELEVANT IDENTIFIED USES

Glass production	Paper production	Manufacture of substances
Detergent component	Laboratory chemicals	Acidity regulator

1.3 MANUFACTURER

Ciner Wyoming LLC
 254 County Road 4-6
 Green River, Wyoming 82935
 United States
 Telephone Number: (307) 875-2600
www.ciner.us.com

1.4 EMERGENCY TELEPHONE NUMBER

Emergency Response Information Provider: CHEMTREC
 Within the United States Emergency Telephone Number: 1-800-424-9300
 Outside the United States / International Emergency Telephone Number: +1-703-527-3887

2 HAZARD(S) IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

GHS Classification in accordance with 29 CFR 1910 (OSHA HazCom Standard):

Eye Irritation (Category 2A), H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

Pictograms:



Irritant

Signal Word: Warning

Hazard Statement(s):

H319 Causes serious eye irritation.

Precautionary Statement(s):

P264 Wash skin thoroughly after handling.

P280 Wear eye protection / face protection.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 If eye irritation persists: Get medical advice / attention.

2.3 HAZARDS NOT OTHERWISE CLASSIFIED OR NOT COVERED BY GHS

None

3 COMPOSITION / INFORMATION ON INGREDIENTS

3.1 SUBSTANCES

Synonyms: Soda Ash, Sodium Carbonate, Carbonic Acid Sodium Salt

Formula: Na_2CO_3

Molecular Weight: 105.99 g/mol

Component (REACH Registration)	CAS # / EC #	Concentration	Classifications	Remark
Sodium carbonate (01-2119485498-19-0011)	CAS #: 497-19-8 EC #: 207-838-8	≥ 99%	Eye Irrit. 2A, H319	Mono-constituent

* For the full text of the H-Statements mentioned in this Section, see Section 16.

4 FIRST-AID MEASURES

4.1 DESCRIPTION OF FIRST-AID MEASURES

General - Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

After inhalation - Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

After skin contact - Rinse with water. Soap may be used. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists.

After eye contact - Rinse immediately with plenty of water for at least 15 minutes. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.

After ingestion - Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Consult a doctor/medical service if victim is unwell.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

4.2.1 Acute Symptoms

If inhaled - Dry/sore throat. Coughing. Slight irritation. Exposure to high concentrations: Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Respiratory difficulties.

In case of skin contact - Not irritating

In case of eye contact - Inflammation/damage of the eye tissue. Corrosion of the eye tissue. Lacrimation.

If swallowed - After absorption of high quantities: Nausea. Vomiting. Abdominal pain. Irritation of the gastric/intestinal mucosa.

4.2.2 Delayed Symptoms

No effects known.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

No data available.

5 FIRE-FIGHTING MEASURES

5.1 EXTINGUISHING MEDIA

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Upon combustion CO and CO₂ are formed. Reacts on exposure to water with some metals. CO₂ generation occurs when mixed with acidic materials.

5.3 ADVICE FOR FIREFIGHTERS

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Gloves. Safety glasses. Protective clothing. Dust cloud protection and heat/fire exposure: Compressed air respirator.

6 ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 ENVIRONMENTAL PRECAUTIONS

Contain released substance, pump into suitable containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray. Violent exothermic reaction with some acids; release of harmful gases/vapors (carbon dioxide). Carbon dioxide is heavier than air and will collect in ducts, drains and low lying areas. Prevent spreading in sewers.

6.3 METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

Prevent dust cloud formation. Scoop solid spill material into closed containers. Carefully collect the spill. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

6.4 REFERENCE TO OTHER SECTIONS

For disposal see section 13.

7 HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING

Avoid contact with skin and eyes. Use air conveying/mechanical systems for bulk transfer to storage. Provide appropriate exhaust ventilation at places where dust is formed. In case of insufficient ventilation, wear suitable respiratory equipment if release of airborne dust is expected.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Store in original container. Keep in properly labeled containers. Keep container tightly closed.

7.3 SUITABLE PACKAGING MATERIAL

No data available

7.4 INCOMPATIBLE PRODUCTS

Aluminum, powdered aluminum, and acids.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

Contains no substances with occupational exposure limit values.

8.2 EXPOSURE CONTROLS

Appropriate engineering controls – Avoid formation of dust. Keep away from ignition sources. Keep container tightly closed. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 PERSONAL PROTECTIVE EQUIPMENT

Eye / Face Protection – Safety glasses with side shields or protective goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection – Handle with gloves, butyl rubber or PVC, which have good resistance. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection – Protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection – For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

8.4 CONTROL OF ENVIRONMENTAL EXPOSURE

Prevent leakage or spillage if safe to do so. Do not let product enter drains. See section 6.2, 6.3, and 13.

9 PHYSICAL AND CHEMICAL PROPERTIES**9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES**

Appearance Form:	Crystalline Solid / Crystalline Powder / Grains / Lumps
Color:	Colorless
Odor:	Odorless
Odor Threshold:	No data available
Particle Size:	694 µm
pH:	11.6; 5.0%
Melting Point / Freezing Point:	851 °C / 1,564 °F
Boiling Point:	1,600 °C / 2,912 °F
Flash Point:	No data available
Explosion Limits:	No data available
Evaporation Rate:	No data available
Flammability:	Non Combustible
Log Kow:	-6.19 Estimated value
Viscosity:	No data available
Vapor Pressure:	No data available
Vapor Density:	No data available
Solubility water:	212.5 g/l; 20 °C / 68 °F
Relative Density:	2.52 -253; 20 °C / 68 °F
Absolute Density:	2,530 kg/m ³
Decomposition temperature:	>1600 °C / >2912 °F
Auto-ignition temperature:	>400 °C / >752 °F
Explosive Properties:	No data available
Oxidizing Properties:	No data available

9.2 PHYSICAL HAZARDS

No data available

10 STABILITY AND REACTIVITY**10.1 REACTIVITY**

None under normal use conditions.

10.2 CHEMICAL STABILITY

Stable. Decomposes by reaction with strong acid.

10.3 POSSIBILITY OF HAZARDOUS REACTIONS

None under normal processing.

10.4 CONDITIONS TO AVOID

Exposure to air or moisture over prolonged periods.

10.5 INCOMPATIBLE MATERIALS

Aluminum, powdered aluminum, and acids.

10.6 HAZARDOUS POLYMERIZATION

Hazardous polymerization does not occur.

11 TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS**11.1.1 Acute toxicity**

LD50 Oral - rat - 2,800 mg/kg

LD50 Dermal - rabbit >2,000 mg/kg

LD50 Inhalation - rat - 2.30 mg/l, 2 hour exposure time

11.1.2 Corrosion/irritation

Skin - rabbit

Result: Mild skin irritation - 24 hours

11.1.3 Serious eye damage/eye irritation

Eyes - rabbit

Result: Severe eye irritation - 24 hours

11.1.4 Respiratory or skin sensitization

Inhalation - no data available

Skin Sensitization: no data available

11.1.5 Germ cell mutagenicity

No data available

11.1.6 Carcinogenicity

No data available

11.1.7 Reproductive toxicity

No data available

11.1.8 Specific target organ toxicity - single exposure

No data available

11.1.9 Specific target organ toxicity - repeated exposure

No data available

11.1.10 Chronic effects from short and long-term exposure

On continuous / repeated exposure / contact: Red skin. Dry skin. Tingling / irritation of the skin. Affection of the nasal septum.

12 ECOLOGICAL INFORMATION

12.1 TOXICITY

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	Other	300 mg/l	96 h	Lepomis macrochirus	Static system	Fresh water	Experimental value
Acute toxicity invertebrates	EC50	Other	200 - 227 mg/l	48 h	Ceriodaphnia sp.	Semi-static	Fresh water	Experimental value
Toxicity algae and other aquatic plants	EC50		242 mg/l	5 days	Algae			Experimental value

12.2 PERSISTENCE AND DEGRADABILITY:

Biodegradability: not applicable

12.3 BIOACCUMULATIVE POTENTIAL:

Low potential for bioaccumulation (Log Know <4)

12.4 MOBILITY IN SOIL:

Low potential for absorption in soil.

12.5 RESULTS OF PBT AND vPvB ASSESSMENT:

PBT/vPvB assessment not available as chemical safety assessment is not required/not conducted.

12.6 OTHER ADVERSE EFFECTS:

No data available

13 DISPOSAL CONSIDERATIONS

13.1 WASTE DISPOSAL

Remove waste in accordance with local and/or national regulations. Contact a licensed professional waste disposal service to dispose of this material. Different types of hazardous waste should not be mixed together if it will entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. Do not discharge into drains.

14 TRANSPORT INFORMATION

14.1 UNITED STATES DEPARTMENT OF TRANSPORTATION (DOT)

Non-regulated

14.2 INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

Non-regulated

14.3 INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

Non-regulated

14.4 TDG / ADN / RID / ADRNon-regulated

15 REGULATORY INFORMATION

15.1 SARA 302 COMPONENTS

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

15.2 SARA 313 COMPONENTS

SARA 313: This material does not contain any chemical with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

15.3 SARA 311/312 HAZARDS

Acute Health Hazard

15.4 PENNSYLVANIA RIGHT TO KNOW COMPONENTS

Sodium carbonate, CAS-No: 497-19-8

15.5 NEW JERSEY RIGHT TO KNOW COMPONENTS

Sodium carbonate, CAS-No: 497-19-8

15.6 WHMIS CLASSIFICATION: C, D2

Note: The product listed on this SDS has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations.

16 OTHER INFORMATION

16.1 FULL TEXT OF H-STATEMENTS REFERRED TO UNDER SECTION 2 AND 3.

Eye Irrit. H319	Eye Irritation Causes serious eye irritation
--------------------	---

16.2 HMIS RATING

Health Hazard:	2
Flammability:	0
Physical Hazard:	0

16.3 NFPA RATING

Health Hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

16.4 NOTICE

The above information is believed to be correct but is not intended to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Ciner and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.



MISSISSIPPI®
LIME

Standard Hydrated Lime

Discovering what's possible with calcium

TECHNICAL DATA SHEET

PRODUCT DESCRIPTION

Standard Hydrated Lime is a refined hydrate that has a small median particle size, good flow properties, high surface area, and high total & available Ca(OH)_2 . Standard Hydrated Lime is used in flue gas treatment (for the control of SO_2 and SO_3 emissions), water and waste water treatment, acid neutralization, construction and other environmental applications.

TYPICAL CHEMICAL PROPERTIES	
Ca(OH)_2 - Total	98.0%
Ca(OH)_2 - Available	96.8%
CO_2	0.5%
Free Moisture	0.7%
CaSO_4	0.1%
Sulfur - Equivalent	240 ppm
Crystalline Silica	<0.1%
Al_2O_3	0.2%
Fe_2O_3	0.06%
MgO	0.4%
P_2O_5	100 ppm
MnO	25 ppm

TYPICAL PHYSICAL PROPERTIES	
Specific Gravity	2.34
Dry Brightness, G.E.	92.0
Median Particle Size - Sedigraph	2 micron
pH	12.4
-100 Mesh (150 μm)	100.0%
-200 Mesh (75 μm)	99.0%
-325 Mesh (45 μm)	94.0%
Apparent Dry Bulk Density - Loose	22 lbs./ft ³
Apparent Dry Bulk Density - Packed	35 lbs/ft ³

- ✓ Meets the AWWA standard B202-02
- ✓ Certified to NSF standard 60
- ✓ Certified to ASTM standards:
 - C977-95
 - C1097-95
 - C207-91 (type N only)
 - C911-99



Telephone: 800.437.5463
Contact: sales@mississippilime.com
Web site: www.mississippilime.com

All information provided and recommendations made herein are intended to assist customers in determining whether our products are suitable for their applications. We request that customers inspect and test our products before use in order to make their own final decision regarding suitability. We do not guarantee results, freedom from patent infringement, or suitability of resultant products for any suggested application with respect to the use of any formula or material described herein.

Ed. 09/2006

1. PRODUCT AND COMPANY IDENTIFICATION**1.1 Product identifiers****SODIUM HYDROXIDE, SOLID**

Synonyms: Caustic Soda Pearls, Caustic Soda Flakes, Caustic Soda Prills

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Chemical processing, soaps and detergents, water treatment, pulp and paper, petroleum industries.

Supplier: Connection Chemical, LP
126 South State St. Ste. 200
Newtown, PA 18940 USA

Telephone: +1 215-493-4240

Fax: +1 215-493-3801

1.3 Emergency telephone number

CHEMTREC : 1-800-424-9300

2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture**

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Corrosive to metals (Category 1), Skin corrosion (Category 1B), Serious eye damage (Category 1), Specific Target Organ Toxicity (Category 3).

2.2 GHS Label elements, including precautionary statements

Pictogram:



Signal word: **DANGER**

Hazard statement(s)

- May be corrosive to metals.
- Causes severe skin burns and serious eye damage.
- May cause respiratory irritation.

Precautionary statement(s)

Prevention:

- Keep only in original packaging.
- Do not breathe dust/fume/gas/mist/vapors/spray.
- Wash skin thoroughly after handling.
- Wear protective gloves/ protective clothing/ eye protection/ face protection.
- Use only outdoors or in a well-ventilated area.

Response:

- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

- IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- Wash contaminated clothing before reuse.
- IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.

Storage:

- Store in corrosive resistant container with a resistant inner liner.
- Store locked up.
- Store in a well ventilated place. Keep container tightly closed.

Disposal:

- Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : 'Caustic soda'

Formula : NaOH

Molecular weight : 40.00 g/mol

CAS-No. : 1310-73-2

Hazardous components

Component	Concentration
Sodium hydroxide	≤ 100 %

4. FIRST AID MEASURES

4.1 Description of first aid

Measures General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Sodium oxides

Sodium oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Storage class (TRGS 510): Non-combustible, corrosive hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure Limits

Components with workplace exposure limits

Component	CAS-No.	Value	Exposure Limits	Basis
Sodium hydroxide	1310-73-2	TWA	2 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		C	2 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation Skin irritation		
		C	2 mg/m ³	USA. NIOSH Recommended Exposure Limits

Derived No Effect Level (DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Inhalation	Long-term local effects	1 mg/m ³
Consumers	Inhalation	Long-term local effects	1 mg/m ³

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- | | |
|---------------|---------------|
| a) Appearance | Form: pellets |
| | Color: white |
| b) Odor | odorless |

- | | |
|---|--|
| c) Odor Threshold | No data available |
| d) pH | 14 at 50 g/l at 20 °C (68 °F) |
| e) Melting point/freezing point | Melting point/range: 318 °C (604 °F) - lit. |
| f) Initial boiling point and boiling range | 1,390 °C (2,534 °F) |
| g) Flash point | Not applicable |
| h) Evaporation rate | No data available |
| i) Flammability (solid, gas) | No data available |
| j) Upper/lower flammability or explosive limits | No data available |
| k) Vapor pressure | < 24.00 hPa (< 18.00 mmHg) at 20 °C (68 °F)
4.00 hPa (3.00 mmHg) at 37 °C (99 °F) |
| l) Vapor density | 1.38 - (Air = 1.0) |
| m) Relative density | 2.1300 g/cm ³ |
| n) Water solubility | ca. 1,260 g/l at 20 °C (68 °F) |
| o) Partition coefficient: n-octanol/water | No data available |
| p) Auto-ignition temperature | No data available |
| q) Decomposition temperature | No data available |
| r) Viscosity | No data available |
| s) Explosive properties | No data available |
| t) Oxidizing properties | No data available |

9.2 Other safety information

- | | |
|------------------------|-----------------------------|
| Bulk density | ca. 1,150 kg/m ³ |
| Relative vapor density | 1.38 - (Air = 1.0) |

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents, Strong acids, Organic materials

- 10.6 Hazardous decomposition products**
Other decomposition products - No data available
In the event of fire, see section 5

11. TOXICOLOGICAL INFORMATION**11.1 Information on toxicological effects****Acute toxicity**

No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: Causes severe burns - 24 h

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Corrosive - 24 h

Respiratory or skin sensitization

Will not occur

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: WB4900000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly



SAFETY DATA SHEET

Version 1.1

Revision Date 05/13/2015

investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish LC50 - *Gambusia affinis* (Mosquito fish) - 125 mg/l - 96 h
 LC50 - *Oncorhynchus mykiss* (rainbow trout) - 45.4 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates Immobilization EC50 - *Daphnia* (water flea) - 40.38 mg/l - 48h

12.2 Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 1823 Class: 8 Packing group: II
Proper shipping name: Sodium hydroxide, solid
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 1823 Class: 8 Packing group: II EMS-No: F-A, S-B
Proper shipping name: SODIUM HYDROXIDE, SOLID

IATA

UN number: 1823 Class: 8 Packing group: II
Proper shipping name: Sodium hydroxide, solid

15. REGULATORY INFORMATION**SARA 302 Components**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard

Massachusetts Right To Know Components
Sodium hydroxide

CAS-No. 1310-73-2

Revision Date 2007-03-01

Pennsylvania Right To Know Components
Sodium hydroxide

CAS-No. 1310-73-2

Revision Date 2007-03-01

New Jersey Right To Know Components
Sodium hydroxide

CAS-No. 1310-73-2

Revision Date 2007-03-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION**HMIS Rating**

Health hazard: 3

Chronic Health Hazard:

Flammability: 0

Physical Hazard: 0

NFPA Rating

Health hazard: 3

Fire Hazard: 0

Reactivity Hazard: 0

Further information

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Connection Chemical, LP be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Connection Chemical, LP has been advised of the possibility of such damages.

Preparation Information

Connection Chemical, LP

Version: 1.1

Revision Date: 05/13/2015

MATERIAL SAFETY DATA SHEET

COTTON SEED HULLS

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME: COTTON SEED HULLS

CHEMICAL CLASS: Cellulose material

APPLICATIONS: Oil well drilling fluid additive. Lost circulation material.

SUPPLIER: Mud-Co/Service Mud Inc.
279 NE 70th Avenue
Pratt, KS 67124

TELEPHONE: 620-672-2957

FAX: 620-672-7192

2. COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENT NAME:	CAS No.:	CONTENTS :	EPA RQ:	TPQ:
Cotton dust (raw)		0-1 %		
Particulates Not Otherwise Classi- fied (PNOC)		99-100 %		

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

CAUTION! MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION. Avoid contact with eyes, skin and clothing. Avoid breathing airborne product. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

This product is a/an This product is a powder. May form explosive dust-air mixtures. Slippery when wet. A nuisance dust.

ACUTE EFFECTS:

HEALTH HAZARDS, GENERAL:

Particulates may cause mechanical irritation to the eyes, nose, throat and lungs. Particulate inhalation may lead to pulmonary fibrosis, chronic bronchitis, emphysema and bronchial asthma. Dermatitis and asthma may result from short contact periods.

INHALATION: May be irritating to the respiratory tract if inhaled.

INGESTION: May cause gastric distress, nausea and vomiting if ingested.

SKIN: May be irritating to the skin.

EYES: May be irritating to the eyes.

CHRONIC EFFECTS:

SENSITIZATION:

Chronic exposure may cause an allergic response due to allergens or fungi on the dust.

CARCINOGENICITY:

IARC: Not listed. OSHA: Not regulated. NTP: Not listed.

ROUTE OF ENTRY:

Inhalation. Skin and/or eye contact.

TARGET ORGANS:

Respiratory system, lungs. Skin. Eyes.

4. FIRST AID MEASURES

GENERAL:

Persons seeking medical attention should carry a copy of this MSDS with them.

INHALATION:

Move the exposed person to fresh air at once. Perform artificial respiration if breathing has stopped. Get medical attention.

INGESTION:

Drink a couple of glasses water or milk. Do not give victim anything to drink if he is unconscious. Get medical attention.

SKIN:

Wash skin thoroughly with soap and water. Remove contaminated clothing. Get medical attention if any discomfort continues.

EYES:

Promptly wash eyes with lots of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

5. FIRE FIGHTING MEASURES

AUTO IGNITION TEMP. (°F):

N/D

FLAMMABILITY LIMIT - LOWER(%):

N/D

FLAMMABILITY LIMIT - UPPER(%):

N/D

EXTINGUISHING MEDIA:

Foam. Water spray, fog or mist.

SPECIAL FIRE FIGHTING PROCEDURES:

No specific fire fighting procedure given.

UNUSUAL FIRE & EXPLOSION HAZARDS:

Dust in high concentrations may form explosive mixtures with air.

HAZARDOUS COMBUSTION PRODUCTS:

Irritating gases/vapors/fumes. Oxides of: Carbon.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:

Wear proper personal protective equipment (see MSDS Section 8).

SPILL CLEAN-UP PROCEDURES:

Avoid generating and spreading of dust. Shovel into dry containers. Cover and move the containers. Flush the area with water. Do not contaminate drainage or waterways. Repackage or recycle if possible.

7. HANDLING AND STORAGE

HANDLING PRECAUTIONS:

Avoid handling causing generation of dust. Wear full protective clothing for prolonged exposure and/or high concentrations. Eye wash and emergency shower must be available at the work place. Wash hands often and change clothing when needed. Provide good ventilation. Mechanical ventilation or local exhaust ventilation is required.

STORAGE PRECAUTIONS:

Store at moderate temperatures in dry, well ventilated area. Keep in original container.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

INGREDIENT NAME:

Cotton dust (raw)

CAS No.:

OSHA PEL:

TWA: 1

STEL: 0.2

ACGIH TLV:

TWA: 0.2

OTHER:

TWA: STEL: TWA: STEL: UNITS: mg/m3

PROTECTIVE EQUIPMENT:



ENGINEERING CONTROLS:

Use appropriate engineering controls such as, exhaust ventilation and process enclosure, to reduce air contamination and keep worker exposure below the applicable limits.

VENTILATION:

Supply natural or mechanical ventilation adequate to exhaust airborne product and keep exposures below the applicable limits.

RESPIRATORS:

Use at least a NIOSH-approved N95 half-mask disposable or reusable particulate respirator. In work environments containing oil mist/aerosol use at least a NIOSH-approved P95 half-mask disposable or reusable particulate respirator.

PROTECTIVE GLOVES:

Use suitable protective gloves if risk of skin contact.

EYE PROTECTION:

Wear dust resistant safety goggles where there is danger of eye contact.

PROTECTIVE CLOTHING:

Wear appropriate clothing to prevent repeated or prolonged skin contact.

HYGIENIC WORK PRACTICES:

Wash promptly with soap and water if skin becomes contaminated. Change work clothing daily if there is any possibility of contamination.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE:

Powder, dust.

COLOR:

Brown.

ODOR:

Odorless or no characteristic odor.

SOLUBILITY DESCRIPTION:

Insoluble in water.

DENSITY/SPECIFIC GRAVITY (g/ml):

0.24

TEMPERATURE (°F): 68

BULK DENSITY:

15 lb/ft³; 237 kg/m³

VAPOR DENSITY (air=1):

N/A

VAPOR PRESSURE:

N/A

TEMPERATURE (°F):

10. STABILITY AND REACTIVITY

STABILITY: Normally stable.

CONDITIONS TO AVOID:
Avoid heat.

HAZARDOUS POLYMERIZATION:
Will not polymerize.

POLYMERIZATION DESCRIPTION:
Not relevant.

MATERIALS TO AVOID:
Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS:
No specific hazardous decomposition products noted.

11. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:
No toxicological data is available for this product.

12. ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION:
Contact M-I Environmental Affairs for ecological information.

13. DISPOSAL CONSIDERATIONS

WASTE MANAGEMENT:
This product does not meet the criteria of a hazardous waste if discarded in its purchased form. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc, may render the resulting materials hazardous. Empty containers retain residues. All labeled precautions must be observed.

DISPOSAL METHODS:
Recover and reclaim or recycle, if practical. Should this product become a waste, dispose of in a permitted industrial landfill. Ensure that containers are empty by RCRA criteria prior to disposal in a permitted industrial landfill.

14. TRANSPORT INFORMATION

PRODUCT RQ: N/A

U.S. DOT:
U.S. DOT CLASS: Not regulated.

CANADIAN TRANSPORT:
TDGR CLASS: Not regulated.

NPCA HMIS PERS. PROTECT. INDEX: E - Safety Glasses, Gloves, Dust Respirator

USER NOTES: N/A = Not applicable N/D = Not determined

INFORMATION SOURCES: OSHA Permissible Exposure Limits, 29 CFR 1910, Subpart Z, Section 1910.1000, Air Contaminants.

ACGIH Threshold Limit Values and Biological Exposure Indices for Chemical Substances and Physical Agents (latest edition).

Sax's Dangerous Properties of Industrial Materials, 9th ed., Lewis, R.J. Sr., (ed.), VNR, New York, New York, (1997).

PREPARED BY: Sam Hoskin/bb

REVISION No./Repl. MSDS of: 1 / March 1993

MSDS STATUS: Approved.

DATE: January 4, 1999

DISCLAIMER:

MSDS furnished independent of product sale. While every effort has been made to accurately describe this product, some of the data are obtained from sources beyond our direct supervision. We cannot make any assertions as to its reliability or completeness, therefore, user may rely on it only at user's risk. We have made no effort to censor or conceal deleterious aspects of this product. Since we cannot anticipate or control the conditions under which this information and product may be used, we make no guarantee that the precautions we have suggested will be adequate for all individuals and/or situations. It is the obligation of each user of this product to comply with the requirements of all applicable laws regarding use and disposal of this product. Additional information will be furnished upon request to assist the user; however, no warranty, either expressed or implied, nor liability of any nature with respect to this product or to the data herein is made or incurred hereunder.

SAFETY DATA SHEET



A DIVISION OF CHEVRON PHILLIPS
CHEMICAL COMPANY LP

Desco® Deflocculant

Version 2.0

Revision Date 2015-12-10

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product information

Product Name : Desco® Deflocculant
Material : 1016805

Use : Drilling Mud Additive

Company : Chevron Phillips Chemical Company LP
Drilling Specialties Company LLC
10001 Six Pines Drive
The Woodlands, TX 77380

Emergency telephone:

Health:

866.442.9628 (North America)

1.832.813.4984 (International)

Transport:

CHEMTREC 1.800.424.9300 (within USA and Canada) or 703.527.3887 (outside USA and Canada)

Asia: +800 CHEMCALL (+800 2436 2255) China: +86-21-22157316

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Responsible Department : Product Safety and Toxicology Group
E-mail address : SDS@CPChem.com
Website : www.CPChem.com

SECTION 2: Hazards identification

Classification of the substance or mixture

This product has been classified in accordance with the hazard communication standard 29 CFR 1910.1200, the SDS and labels contain all the information as required by the standard.

Emergency Overview

Danger

Form: Powder Physical state: Solid Color: Reddish brown Odor: Mild

OSHA Hazards : Combustible dust, Moderate eye irritant, Carcinogen, Skin

SDS Number: 100000013921

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sensitizer

Classification

: **Combustible dust**
Eye irritation , Category 2A
Skin sensitization , Category 1
Carcinogenicity , Category 1A

Labeling

Symbol(s)



Signal Word

: Danger

Hazard Statements

: May form combustible dust concentrations in air.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H350: May cause cancer.

Precautionary Statements

: **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
Storage:
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Carcinogenicity:

IARC

Group 1: Carcinogenic to humans

Crystalline Silica 14808-60-7

NTP

Known to be human carcinogen

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ACGIH	Crystalline Silica	14808-60-7
	Suspected human carcinogen	
	Crystalline Silica	14808-60-7

SECTION 3: Composition/Information on ingredients

Synonyms : Drilling Mud Deflocculant

Molecular formula : Mixture

Component	CAS-No.	Weight %
Methyl ester of sulfonated tannin	Proprietary	60 - 80
Ferrous Sulfate	17375-41-6	5 - 9
Chromium Acetate	1066-30-4	3 - 10
Crystalline Silica	14808-60-7	0.1 - 1

SECTION 4: First aid measures

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance.

If inhaled : Call a physician or poison control center immediately. If unconscious place in recovery position and seek medical advice.

In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5: Firefighting measures

Flash point : Not applicable

Autoignition temperature : No data available

Unsuitable extinguishing media : High volume water jet.

Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

Desco® Deflocculant**SAFETY DATA SHEET**

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- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Fire and explosion protection : Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.
- Hazardous decomposition products : No data available.

SECTION 6: Accidental release measures

- Personal precautions : Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.
- Environmental precautions : Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods for cleaning up : Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage**Handling**

- Advice on safe handling : Avoid formation of respirable particles. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
- Advice on protection against fire and explosion : Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.

Storage

- Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection**Ingredients with workplace control parameters**

US

Ingredients	Basis	Value	Control parameters	Note
Ferrous Sulfate	ACGIH	TWA	1 mg/m3	varies.

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	OSHA Z-1-A	TWA	1 mg/m3	
Chromium Acetate	OSHA Z-1	TWA	0.5 mg/m3	
	ACGIH	TWA	0.5 mg/m3	A4, varies.
	OSHA Z-1-A	TWA	0.5 mg/m3	
Crystalline Silica	ACGIH	TWA	0.025 mg/m3	A2, Respirable fraction
	OSHA Z-3	TWA	30mg/m3 / %SiO2+2	total dust
	OSHA Z-3	TWA	250mppcf / %SiO2+5	a, b, respirable
	OSHA Z-3	TWA	10mg/m3 / %SiO2+2	e, respirable
	OSHA Z-1-A	TWA	0.1 mg/m3	Respirable fraction
	OSHA Z-3	TWA	0.1 mg/m3	Respirable fraction
	OSHA Z-1-A	TWA	0.1 mg/m3	respirable dust fraction
	ACGIH	TWA	0.025 mg/m3	A2, Respirable fraction

a Millions of particles per cubic foot of air, based on impinger samples counted by light-field techniques.

A2 Suspected human carcinogen

A4 Not classifiable as a human carcinogen

b The percentage of crystalline silica in the formula is the amount determined from airborne samples, except in those instances in which other methods have been shown to be applicable.

e Both concentration and percent quartz for the application of this limit are to be determined from the fraction passing a size-selector with the following characteristics: Aerodynamic diameter (unit density sphere): 2; Percent passing selector: 90 Aerodynamic diameter (unit density sphere): 2.5; Percent passing selector: 75 Aerodynamic diameter (unit density sphere): 3.5; Percent passing selector: 50 Aerodynamic diameter (unit density sphere): 5.0; Percent passing selector: 25 Aerodynamic diameter (unit density sphere): 10; Percent passing selector: 0 The measurements under this note refer to the use of an AEC (now NRC) instrument. The respirable fraction of coal dust is determined with an MRE; the figure corresponding to that of 2.4 mg/m3 in the table for coal dust is 4.5 mg/m3.

varies varies

Immediately Dangerous to Life or Health Concentrations (IDLH)

Substance name	CAS-No.	Control parameters	Update
Chromium Acetate	1066-30-4	Immediately Dangerous to Life or Health Concentration Value 25 milligram per cubic meter	1995-03-01
Crystalline Silica	14808-60-7	Immediately Dangerous to Life or Health Concentration Value 50 mg/m ³	1995-03-01

Engineering measures

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: Dust safety masks are recommended when the dust concentration is excessive. Air-Purifying Respirator for Dusts and Mists / P100. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the

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product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

- Eye protection : Eye wash bottle with pure water. Safety glasses.
- Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate. Remove and wash contaminated clothing before re-use. Skin should be washed after contact. Footwear protecting against chemicals.
- Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties**Information on basic physical and chemical properties****Appearance**

- Form : Powder
- Physical state : Solid
- Color : Reddish brown
- Odor : Mild
- Odor Threshold : No data available

Safety data

- Flash point : Not applicable
- Lower explosion limit : Not applicable
- Upper explosion limit : Not applicable
- Oxidizing properties : No
- Autoignition temperature : No data available
- Thermal decomposition : No data available
- Molecular formula : Mixture
- Molecular weight : Not applicable
- pH : Not applicable
- Pour point : No data available
- Boiling point/boiling range : Not applicable
- Vapor pressure : Not applicable
- Relative density : Not applicable
- Density : 1.59 g/cm3

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Water solubility : Partly soluble

Partition coefficient: n-octanol/water : No data available

Viscosity, kinematic : Not applicable

Relative vapor density : Not applicable

SECTION 10: Stability and reactivity

Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Conditions to avoid : No data available.

Thermal decomposition : No data available

Hazardous decomposition products : No data available

Other data : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

Desco® Deflocculant
Acute oral toxicity : Acute toxicity estimate: 3,310 mg/kg
Method: Calculation method

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Acute dermal toxicity : Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

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Skin irritation : May cause skin irritation and/or dermatitis.

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Eye irritation : Irritating to eyes.

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Sensitization : Causes sensitization.

Repeated dose toxicity
Methyl ester of sulfonated tannin : Species: Rat, male
Sex: male
Application Route: oral gavage
Dose: 100, 300, 1000 mg/kg

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Exposure time: 32 d
 Number of exposures: Daily
 NOEL: 1,000 mg/kg
 Method: OECD Guideline 422
 No adverse effects expected

Species: Rat, female
 Sex: female
 Application Route: oral gavage
 Dose: 100, 300, 1000 mg/kg
 Exposure time: 39 - 47 d
 Number of exposures: Daily
 NOEL: 1,000 mg/kg
 Method: OECD Guideline 422
 No adverse effects expected

Chromium Acetate

Species: Mouse
 Application Route: oral gavage
 Dose: 5 ppm
 Exposure time: lifetime
 Number of exposures: in drinking water

Carcinogenicity**Chromium Acetate**

: Species: Rat
 Dose: 5 mg/l
 Exposure time: lifetime
 Number of exposures: in drinking water
 Remarks: no increase incidence of tumors

Reproductive toxicity**Methyl ester of sulfonated tannin**

: Species: Rat
 Sex: male
 Application Route: oral gavage
 Dose: 100, 300, 1000 mg/kg
 Exposure time: 32 d
 Number of exposures: Daily
 Method: OECD Guideline 422
 NOAEL Parent: 1,000 mg/kg
 NOAEL F1: 1,000 mg/kg
 Fertility and developmental toxicity tests did not reveal any effect on reproduction.

Species: Rat
 Sex: female
 Application Route: oral gavage
 Dose: 100, 300, 1000 mg/kg
 Exposure time: 39 - 47 d
 Number of exposures: Daily
 Method: OECD Guideline 422
 NOAEL Parent: 1,000 mg/kg
 NOAEL F1: 1,000 mg/kg
 Fertility and developmental toxicity tests did not reveal any effect on reproduction.

CMR effects

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Crystalline Silica : Carcinogenicity: Human carcinogen.

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Further information : No data available.**SECTION 12: Ecological information****Toxicity to fish**Methyl ester of sulfonated
tannin : LL50: > 1,800 mg/l
Exposure time: 96 h
Species: *Scophthalmus maximus* (Flatfish, Flounder)
Method: OECD Test Guideline 203Ferrous Sulfate : LL50: > 6.25 mg/l
Exposure time: 96 h
Species: *Cyprinodon variegatus* (sheepshead minnow)
Method: OECD Test Guideline 203Chromium Acetate : LC50: > 100 mg/l
Exposure time: 96 h
Species: *Danio rerio* (Zebra Fish)
semi-static test Method: OECD Test Guideline 203**Toxicity to daphnia and other aquatic invertebrates**Methyl ester of sulfonated
tannin : EL50: 73.2 mg/l
Exposure time: 48 h
Species: *Acartia tonsa* (Marine Copepod)
Method: ISO TC147/SC5/WG2Ferrous Sulfate : LC50: 190 mg/l
Exposure time: 48 h
Species: *Acartia tonsa* (Marine Copepod)Chromium Acetate : EC50: > 100 mg/l
Exposure time: 48 h
Species: *Daphnia magna* (Water flea)
semi-static test Method: OECD Test Guideline 202**Toxicity to algae**Methyl ester of sulfonated
tannin : ErC50: > 100 mg/l
Exposure time: 72 h
Species: *Desmodesmus subspicatus* (green algae)
Method: OECD Test Guideline 201EbC50: 79 mg/l
Exposure time: 72 h
Species: *Desmodesmus subspicatus* (green algae)
Method: OECD Test Guideline 201Ferrous Sulfate : EL50: 45 mg/l
Exposure time: 72 h
Species: *Skeletonema costatum* (Marine Algae)

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Elimination information (persistence and degradability)

Biodegradability : Taking into consideration the properties of several ingredients, the product is estimated not to be readily biodegradable according to OECD classification.

Ecotoxicology Assessment**Acute aquatic toxicity**

Methyl ester of sulfonated tannin : Harmful to aquatic life.

Chromium Acetate : Harmful to aquatic life.

Chronic aquatic toxicity

Methyl ester of sulfonated tannin : Harmful to aquatic life with long lasting effects.

Additional ecological information : Harmful to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product : The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

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NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information**National legislation**

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

CERCLA Reportable Quantity : Calculated RQ exceeds reasonably attainable upper limit.
Chromium Acetate

SARA 302 Reportable Quantity : This material does not contain any components with a SARA 302 RQ.

SARA 302 Threshold Planning Quantity : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 304 Reportable Quantity : This material does not contain any components with a section 304 EHS RQ.

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SARA 313 Ingredients : The following components are subject to reporting levels established by SARA Title III, Section 313:

: Chromium Acetate - 1066-30-4

Clean Air Act

Ozone-Depletion Potential : This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):
: Chromium Acetate - 1066-30-4

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

US State Regulations**Pennsylvania Right To Know**

: Ferrous Sulfate - 17375-41-6
Chromium Acetate - 1066-30-4

Pennsylvania Right To Know

: Sulfomethylated Quebracho - 68201-64-9
Sodium Lignite - 68131-04-4
Ferrous Sulfate - 17375-41-6
Chromium Acetate - 1066-30-4

New Jersey Right To Know

: Ferrous Sulfate - 17375-41-6
Chromium Acetate - 1066-30-4
Crystalline Silica - 14808-60-7

New Jersey Right To Know

: Sulfomethylated Quebracho - 68201-64-9
Sodium Lignite - 68131-04-4
Ferrous Sulfate - 17375-41-6
Chromium Acetate - 1066-30-4
Crystalline Silica - 14808-60-7

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California Prop. 65
Ingredients: WARNING! This product contains a chemical known in the
State of California to cause cancer.WARNING! This product contains a chemical known in the
State of California to cause cancer.

Crystalline Silica

14808-60-7

Notification status

Europe REACH

: This mixture contains only ingredients which have been
subject to a pre-registration according to Regulation
(EU) No. 1907/2006 (REACH).

Switzerland CH INV

: On the inventory, or in compliance with the inventory

United States of America TSCA

: On the inventory, or in compliance with the inventory

Canada DSL

: On the inventory, or in compliance with the inventory

Australia AICS

: On the inventory, or in compliance with the inventory

New Zealand NZIoC

: On the inventory, or in compliance with the inventory

Japan ENCS

: Not in compliance with the inventory

Korea KECI

: On the inventory, or in compliance with the inventory

Philippines PICCS

: Not in compliance with the inventory

China IECSC

: On the inventory, or in compliance with the inventory

SECTION 16: Other information**NFPA Classification**: Health Hazard: 2
Fire Hazard: 1
Reactivity Hazard: 0**Further information**

Legacy SDS Number : 59390

Significant changes since the last version are highlighted in the margin. This version replaces all
previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge,
information and belief at the date of its publication. The information given is designed only as a
guidance for safe handling, use, processing, storage, transportation, disposal and release and is
not to be considered a warranty or quality specification. The information relates only to the
specific material designated and may not be valid for such material used in combination with any
other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet

ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical	LOAEL	Lowest Observed Adverse Effect

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	Substances		Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		

SAFETY DATA SHEET



A DIVISION OF CHEVRON PHILLIPS
CHEMICAL COMPANY LP

Flowzan® Biopolymer

Version 1.11

Revision Date 2016-05-16

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product information

Product Name : Flowzan® Biopolymer
Material : 1016765, 1016826, 1016827

Use : Drilling Fluid Additive

Company : Chevron Phillips Chemical Company LP
Drilling Specialties Company LLC
10001 Six Pines Drive
The Woodlands, TX 77380

Local : Chevron Phillips Chemicals International N.V.
Airport Plaza (Stockholm Building)
Leonardo Da Vincilaan 19
1831 Diegem
Belgium

SDS Requests: (800) 852-5530
Technical Information: (832) 813-4862
Responsible Party: Product Safety Group
Email:sds@cpchem.com

Emergency telephone:

Health:

866.442.9628 (North America)
1.832.813.4984 (International)

Transport:

CHEMTREC 800.424.9300 or 703.527.3887(int'l)
Asia: +800 CHEMCALL (+800 2436 2255) China:+86-21-22157316
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Responsible Department : Product Safety and Toxicology Group
E-mail address : SDS@CPChem.com
Website : www.CPChem.com

SECTION 2: Hazards identification**Classification of the substance or mixture
REGULATION (EC) No 1272/2008**

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

Label elements**Labeling (REGULATION (EC) No 1272/2008)**

Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.

SECTION 3: Composition/information on ingredients

Synonyms : None Established

Molecular formula : Mixture

Contains no hazardous ingredients according to GHS. :

Remarks : Contains no hazardous ingredients according to GHS.

SECTION 4: First aid measures

General advice : No hazards which require special first aid measures.

If inhaled : If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of skin contact : Wash off with soap and water.

In case of eye contact : Remove contact lenses. Protect unharmed eye. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

SECTION 5: Firefighting measures

Flash point : Not applicable

Autoignition temperature : No data available

Specific hazards during fire fighting : Risks of ignition followed by flame propagation or secondary explosions can be caused by the accumulation of dust, e.g. on floors and ledges.

Special protective : Wear self-contained breathing apparatus for firefighting if

- equipment for fire-fighters : necessary.
- Further information : Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Fire and explosion protection : Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Provide appropriate exhaust ventilation at places where dust is formed.
- Hazardous decomposition products : No data available.

SECTION 6: Accidental release measures

- Personal precautions : Avoid dust formation.
- Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods for cleaning up : Pick up and arrange disposal without creating dust. Clean up promptly by sweeping or vacuum. Keep in suitable, closed containers for disposal.
- Additional advice : Contaminated surfaces will be extremely slippery. Avoid spillage on floor as the product can become very slippery when wet. Sweep up to prevent slipping hazard. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Special exposure hazards arising from the substance or mixture itself, combustion products, resulting gases

SECTION 7: Handling and storage**Handling**

- Advice on safe handling : For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary, but may not by themselves be sufficient.
- Advice on protection against fire and explosion : Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Provide appropriate exhaust ventilation at places where dust is formed.

Storage

- Requirements for storage areas and containers : Electrical installations / working materials must comply with the technological safety standards.
- Advice on common storage : No materials to be especially mentioned.

SECTION 8: Exposure controls/personal protection

Ingredients with workplace control parameters

SE

Beståndsdelar	Grundval	Värde	Kontrollparametrar	Anmärkning
Saturated monocarboxylic acid, calcium salt	SE AFS	NGV	5 mg/m3	43, 44, II c, Total
	SE AFS	NGV	5 mg/m3	2, 43, 44, Total
	SE AFS	NGV	5 mg/m3	2, 43, 44, Totalt damm

- 2 Med respirabelt damm menas den dammfraction som definieras i svensk standard SS-EN 481, Arbetsplatsluft. - Partikelstorleksfraktioner för mätning av luftburna partiklar, Utgåva 1, 1993, punkt 2.11 och som har en provtagningskaraktäristik enligt punkt 5.3. Med inhalerbart damm menas den dammfraction som definieras i svensk standard SS-EN 481, Arbetsplatsluft - Partikelstorleksfraktioner för mätning av luftburna partiklar, Utgåva 1, 1993, punkt 2.3 och som har en provtagningskaraktäristik enligt punkt 5.1. Med respirabelt damm menas den dammfraction som definieras i svensk standard SS-EN 481, Arbetsplatsluft - Partikelstorleksfraktioner för mätning av luftburna partiklar, Utgåva 1, 1993, punkt 2.11 och som har en provtagningskaraktäristik enligt punkt 5.3. Med totaldamm menas de partiklar (aerosoler) som fastnar på ett filter i den provtagare som beskrivs i Metodserien, Provtagnings av totaldamm och respirabelt damm, Metod nr 1010, Arbetskyddsstyrelsen, numera Arbetsmiljöverket. Filterdiametern är normalt 37 mm, men kan även vara 25 mm. Trots sitt namn provas inte den totala mängden luftburna partiklar med denna metod.
- 43 Här innefattas stearater som salter och estrar, bl.a. Aluminiummonostearat [7047-84-9], Aluminiumdistearat [300-92-5], Aluminiumtristearat [637-12-7], Ammoniumstearat [1002-89-7], N-butylstearat [123-95-5], Dietylglykolmonostearat [106-11-6], Etylglykolmonostearat [111-60-4], Glycerolmonostearat [31566-31-1], Kalciumstearat [1592-23-0], Kalkumstearat [593-29-3], Litiumstearat [4485-12-5], Magnesiumstearat [557-04-0], Natriumstearat [822-16-2], Zinkstearat [557-05-1]
- 44 Gränsvärdet gäller inte sådana metallstearater som innehåller toxiska metaller, t.ex. bly. I detta fall ska gränsvärdet för bly användas
- II c Se sidan 57 anmärkning II: Med totaldamm menas de partiklar (aerosoler) som fastnar på ett filter i den provtagare som beskrivs i Metodserien, Provtagnings av totaldamm och respirabelt damm, Metod nr 1010, arbetskyddsstyrelsen, numera Arbetslivsinstitutet, 1979. Filterdiametern är normalt 37 mm, men kan även vara 25 mm.

PT

Componentes	Bases	Valor	Parâmetros de controle	Nota
Saturated monocarboxylic acid, calcium salt	PT OEL	VLE-MP	10 mg/m3	(J), A4, iritação do TRS,

- (J) Não inclui estearatos de metais tóxicos
A4 Agente não classificável como carcinogénico no Homem.
irritação do trato respiratório superior
TRS

LT

Komponentai	Pagrindas, bazė	Vertė	Kontrolės parametrai	Pastaba
Saturated monocarboxylic acid, calcium salt	LT OEL	IPRD	5 mg/m3	

IE

Ingredients	Basis	Value	Control parameters	Note
Saturated monocarboxylic acid, calcium salt	IE OEL	OELV - 8 hrs (TWA)	10 mg/m3	

ES

Componentes	Base	Valor	Parâmetros de control	Nota
Saturated monocarboxylic acid, calcium salt	ES VLA	VLA-ED	10 mg/m3	

BE

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Saturated monocarboxylic acid, calcium salt	BE OEL	TGG 8 hr	10 mg/m3	

Engineering measures

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

- Respiratory protection** : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: Air-Purifying Respirator for Dusts and Mists / P100. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
- Hand protection** : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Eye protection** : Eye wash bottle with pure water. Safety glasses.
- Skin and body protection** : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate: Protective suit. Safety shoes.
- Hygiene measures** : General industrial hygiene practice.

SECTION 9: Physical and chemical properties**Information on basic physical and chemical properties****Appearance**

- Form** : Powder
- Physical state** : Solid
- Color** : Cream to light yellow
- Odor** : Slight
- Odor Threshold** : No data available

Safety data

- Flash point** : Not applicable
- Lower explosion limit** : No data available
- Upper explosion limit** : No data available
- Oxidizing properties** : No
- Autoignition temperature** : No data available
- Molecular formula** : Mixture
- Molecular weight** : Not applicable

pH	: 5,5 - 8,5
Pour point	: No data available
Boiling point/boiling range	: Not applicable
Vapor pressure	: Not applicable
Relative density	: 1,4 - 1,6
Water solubility	: Completely Soluble
Partition coefficient: n-octanol/water	: No data available
Viscosity, kinematic	: No data available
Relative vapor density	: Not applicable
Evaporation rate	: No data available

SECTION 10: Stability and reactivity

Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Conditions to avoid : Generation of Dusts.

Hazardous decomposition products : No data available

Other data : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information**Flowzan® Biopolymer
Further information**

: The product contains no substances classified as hazardous to health in concentrations which should be taken into account.

SECTION 12: Ecological information**Elimination information (persistence and degradability)**

Biodegradability : Taking into consideration the properties of several ingredients, the product is estimated to be biodegradable according to OECD classification.

Ecotoxicology Assessment

Results of PBT assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Additional ecological information : This material is not expected to be harmful to aquatic organisms.

SECTION 13: Disposal considerations

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF

DANGEROUS GOODS (EUROPE))

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information**National legislation**

Major Accident Hazard Legislation : 96/82/EC Update: 2003
Directive 96/82/EC does not apply

Other Registrations

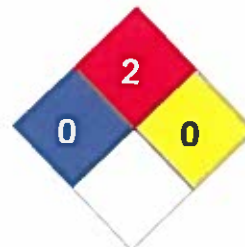
Regulation Registration number
Danish PR number: 1764847

Notification status

Europe REACH	:	On the inventory, or in compliance with the inventory
United States of America TSCA	:	On TSCA Inventory
Canada DSL	:	All components of this product are on the Canadian DSL
Australia AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	On the inventory, or in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	On the inventory, or in compliance with the inventory
Philippines PICCS	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory

SECTION 16: Other information

NFPA Classification : Health Hazard: 0
Fire Hazard: 2
Reactivity Hazard: 0



Further information

Legacy SDS Number : 463650

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		



WYO-BEN, INC.

SAFETY DATA SHEET

SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: **HYDROGEL®**
Chemical Family: **Mineral**
Application: **Drilling Fluid Additive**
Manufacturer/Supplier: **Wyo-Ben, Inc.**
1345 Discovery Drive
Billings, MT 59102 USA
Telephone: **800.548.7055**
Facsimile: **406.656.0748**
Emergency Phone Number: **CHEMTREC® 800.424.9300**

SECTION 2 — HAZARD IDENTIFICATION

Hazard Symbol: **Health Hazard**
Signal Word: **Warning**
Hazard Overview: **ACUTE HEALTH HAZARD**
May cause eye and respiratory irritation.
CHRONIC HEALTH HAZARD
Breathing crystalline silica can cause lung disease, including silicosis and lung cancer.

SECTION 3 — COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	Percent	ACGIH TLV-TWA	OSHA PEL-TWA*
Crystalline Silica, quartz	14808-60-7	1 – 6%	0.025 mg/m ³	$\frac{10 \text{ mg/m}^3}{\% \text{SiO}_2 + 2}$

*More restrictive exposure limits may be enforced by some states, agencies, or other authorities.

Non-hazardous components > 94%

SECTION 4 — FIRST AID MEASURES

Inhalation: **If inhaled, remove to a dust free area. Get medical attention if respiratory irritation develops or if breathing becomes difficult. Inhalation may aggravate existing respiratory illness.**
Skin: **Wash with soap and water until clear. Seek medical attention if irritation persists.**
Eyes: **In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.**
Ingestion: **No adverse effects.**
Notes to Physician: **Treat Symptomatically.**

SECTION 5 — FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not applicable
Flash Point/Range (C):	Not applicable
Flash Point Method:	Not applicable
Autoignition Temperature (F):	Not applicable
Autoignition Temperature (C):	Not applicable
Flammability Limits in Air – Lower (%):	Not applicable
Flammability Limits in Air – Upper (%):	Not applicable
Fire Extinguishing Media:	All standard firefighting media. (Caution slippery when wet.)
Special Exposure Hazards:	Not applicable
Special Protective Equipment for Firefighters:	Not applicable
NFPA Ratings:	Health 0, Flammability 0, Reactivity 0

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures:	Use appropriate protective equipment. Avoid creating and breathing dust.
Environmental Precautionary Measures:	None known.
Procedure for Cleaning/Absorption:	Collect using appropriate dustless method and hold for appropriate disposal.

SECTION 7 — HANDLING AND STORAGE

Handling Precautions:	This product contains quartz which may become airborne. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH/MSHA European Standard En 149, or equivalent certified for silica bearing dust, respirator when using this product. Material is slippery when wet. Promptly clean up spills to avoid breathing airborne dust.
Storage Information:	Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:	Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.
Personal Protective Equipment:	If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection:	Not normally needed. If significant exposures are possible use NIOSH/MSH respirator approved for silica bearing dust.
Hand Protection:	Normal work gloves.
Skin Protection:	Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.
Eye Protection:	Wear safety glasses or goggles to protect against exposure.
Other Precautions:	None known.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Color:	Light tan to gray as dry powder
Odor:	Odorless
pH:	8 – 10 (5% aqueous solution)
Specific Gravity @ 20 C (Water=1):	2.45 – 2.55
Density @ 20 C (lbs/gallon):	Not determined
Bulk Density @ 20 C (lbs/ft ³):	49 – 55
Boiling Point/Range (F):	Not applicable
Boiling Point/Range (C):	Not applicable
Freezing Point/Range (F):	Not applicable
Freezing Point/Range (C):	Not applicable
Vapor Pressure @ 20 C (mmHg):	Not applicable
Vapor Density (Air=1):	Not applicable
Percent Volatiles:	Not applicable
Evaporation Rate (Butyl Acetate=1):	Not applicable
Solubility in Water (g/100ml):	Insoluble, forms colloidal suspension
Solubility in Solvents (g/100ml):	Not applicable
VOCs (lbs/gallon):	Not applicable
Viscosity, Dynamic @ 20 C (centipoise):	240
Viscosity, Kinematic @ 20 C (centistrokes):	Not applicable
Partition Coefficient/n-Octanol/Water:	Not applicable
Molecular Weight (g/mole):	Not applicable

SECTION 10 — STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid:	None anticipated
Incompatibility (Materials to Avoid):	Hydrofluoric Acid
Hazardous Decomposition Products:	None
Additional Guidelines:	Not applicable

SECTION 11 — TOXICOLOGICAL INFORMATION

Principle Route of Exposure:	Eye or skin contact, inhalation.
Inhalation:	Inhaled crystalline silica in the form of quartz from occupational sources is carcinogenic to humans (IARC, Group 1).
Skin Contact:	May cause mechanical skin irritation.
Eye Contact:	May cause eye irritation.
Ingestion:	None known
Aggravated Medical Conditions:	Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to respirable quartz-bearing dust.
Chronic Effects/Carcinogenicity:	<p>Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.</p> <p>Cancer Status: The International Agency for Research on Cancer (IARC, 1997) concludes that there is sufficient evidence in humans for carcinogenicity of inhaled crystalline silica from occupational sources (IARC Group 1), that carcinogenicity was not detected in all industrial circumstances studied and that carcinogenicity may depend on characteristics of the crystalline silica or on external factors affecting its biological activity. See IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997). The National Toxicology Program (NTP) classifies respirable crystalline silica as "Known to be a human carcinogen" (NTP 9th Report on Carcinogens, 2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).</p>
Other Information:	See "Adverse Effects of Crystalline Silica Exposure" published by the American Thoracic Society Medical Section of the American Lung Association, American Journal of Respiratory and Critical Care Medicine, Volume 155, pages 761-768 (1997).
Toxicity Tests	
Oral Toxicity:	Not determined (on FDA GRAS list; used as a food additive)
Dermal Toxicity:	Not determined (on FDA GRAS list; used in cosmetic preparations)
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity:	Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997).
Genotoxicity:	Not determined
Reproductive/Developmental Toxicity:	Not determined

SECTION 12 — ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air):	Not determined
Persistence/Degradability:	Not determined
Bio-accumulation:	Not determined

Ecotoxicological Information

Acute Fish Toxicity:	Not determined
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	Not determined

Chemical Fate Information:	Not determined
Other Information:	Not applicable

SECTION 13 — DISPOSAL CONSIDERATIONS

Disposal Method:	Bury in a licensed landfill according to federal, state and local regulations.
Contaminated Packaging:	Follow all applicable national or local regulations.

SECTION 14 — TRANSPORT INFORMATION

Land Transportation

DOT – Not Restricted
Canadian TDG – Not Restricted
ADR – Not Restricted

Air Transportation

ICAO/IATA – Not Restricted

Sea Transportation

IMDG – Not Restricted

Other Transportation Information

Labels: None

SECTION 15 — REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory or are exempt.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311, 312) Hazard Class	Acute Health Hazard Chronic Health Hazard
EPA SARA (313) Chemicals	This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).

EPA CERCLA/Superfund
Reportable Spill Quantity

Not applicable

EPA RCRA Hazardous Waste
Classification

If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.

California Proposition 65

This product contains crystalline silica (respirable) which is a substance known to the State of California to cause cancer.

Canadian Regulations

Canadian DSL Inventory

All components listed on inventory are exempt.

WHMIS Hazard Class

This product contains crystalline silica (respirable) and is classified as a Class D, Division 2, Subdivision A substance.

SECTION 16 — OTHER INFORMATION

Prepared 03/18/2015

Last Revision 06/08/2015

DISCLAIMER

All information presented herein is believed to be accurate; however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances. No warranty or guarantee, expressed or implied is made by WYO-BEN, INC. as to this information, or as to the safety, toxicity or effect of the use of this product.

MATERIAL SAFETY DATA SHEET

1. PRODUCT COMPANY AND IDENTIFICATION

Trade Name	Walnut Shell
Generic Description	Ground Walnut shells
Manufacturer/Supplier	Grinding & Sizing Company, Inc.
Address	515 Industrial Boulevard Lufkin, TX 75904
Phone Number	936-634-7718
Emergency Number	1-800-324-0777

2. COMPOSITION/INFORMATION ON THE COMPONENTS

Material or Component	CAS Number	Percentage
Ground walnut shells		100%

3. HAZARD IDENTIFICATION

Hazard Data: Powder may be irritating to skin, eyes and respiratory tract.

Health	1	
Flammability	0	
Reactivity	0	Ratings based on NPFA

Inhalation:
Irritating to the respiratory tract if inhaled. Nuisance dust 15 mg/m³ total dust.

Skin Contact:
May be irritating to the skin with prolonged contact.

Eye Contact:
May cause irritation to the eyes.

Ingestion:
Non toxic. Not anticipated route of exposure.

Chronic Health Effects
None known.

Medical Conditions Aggravated by Exposure
None known.

4. **FIRST AID MEASURES**

Inhalation:

Remove person to fresh air. Get medical attention for any breathing difficulty.

Skin Contact:

Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Contact:

Wash thoroughly with large amounts of running water for at least 15 minutes. Get medical advice if irritation develops.

Ingestion:

If large amounts were ingested, give water to drink and get medical advise.

Advice to Physicians

Treat symptomatically.

5. **FIRE FIGHTING MEASURES**

Flash Point

Not applicable

Flammable Limits

Not applicable

Fire Extinguishing Media

Water, foam, sand, fire extinguisher

Unusual Fire and Explosion Hazard

None

6. **ACCIDENTAL RELEASE MEASURES**

Release or Spill

Collect and place in suitable container for reuse or disposal.

Personal Precautions

Avoid breathing dust.

Environmental Precautions

None

7. **HANDLING AND STORAGE**

Store in a cool, dry, ventilated area. Use good housekeeping in storage and work areas to prevent accumulation of dust. Keep away from oxidizing agents.

8. **EXPOSURE CONTROL/PERSONAL PROTECTION**

Airborne Exposure Limits

OSHA Permissible Exposure Limit (PEL) 15 mg/m³ total dust, 5 mg/m³ respirable fraction for nuisance dusts.

Ventilation Requirements:

A system of local and/or general exhaust is recommended if handled in a confined area.

Respiratory Protection

Use NIOSH approved nuisance dust respirator.

Skin Protection

Wear long sleeved clothing and work gloves.

Eye Protection

Wear safety glasses with side shields. Maintain eye wash station in work area.

Other Protection Equipment/Clothing

As appropriate for work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Powder/granules
Color	Brown
Odor	None
pH	Not applicable
Specific Gravity	Not determined
Boiling Range/Point	Not applicable
Flash Point	Not applicable
Explosion Limits (%)	Not applicable
Density @20C (uncompacted)	44.3 lbs/cu. ft.
Solubility in Water	Insoluble
Vapor Density (Air=1)	Not applicable
Evaporation Rate (butyl acetate=1)	Not applicable

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions of use and storage.

Materials to Avoid: Excessive heat and strong oxidizers.

Hazardous Polymerization: Will not occur.

Hazardous Decomposition: None

11. TOXICOLOGICAL INFORMATION

No acute toxicity data is available for product or components.

Cancer Status: Not listed as carcinogen by IARC, NTP or OSHA.

12. ECOLOGICAL INFORMATION

No ecotoxicity data is available. This product is not expected to present an environmental hazard.

13. DISPOSAL

Dispose of material in accordance with all local, state, and federal regulations.

14. TRANSPORTATION INFORMATION

UN Proper Shipping Name	Not regulated
UN Label	None
UN Identification Number	None
Hazardous Ingredients	None
Placards	None
Reportable Quantity	None

15. REGULATORY INFORMATION

TSCA Listed	Yes
SARA Title III Section 302	No
SARA Title III Section 311/312	No
SARA Title III Section 313	No

16. OTHER INFORMATION

Abbreviations
N/A: Denotes no applicable information found or available
CAS#: Chemical Abstracts Service Number
ACGIH: American Conference of Governmental Industrial Hygienists
OSHA: Occupational Safety and Health Administration
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
STEL: Short Term Exposure Limit
NTP: National Toxicology Program
IARC: International Agency for Research on Cancer

MSDS Date: 06/2006

Disclaimer: All information and recommendations concerning product is based on tests and data believed to be reliable; however it is the user's respon determine the safety, toxicity and suitability for the user's own use of the product described herein. Since the actual use by others is beyond our control guarantee expressed or implied is made by Grinding & Sizing Company. Nor is the information herein to be construed as absolutely complete since ad information may be necessary or desirable when particular conditions exist or because of applicable laws or government regulations.



WYO-BEN, INC.

SAFETY DATA SHEET

SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: **HYDROGEL®**
Chemical Family: **Mineral**
Application: **Drilling Fluid Additive**
Manufacturer/Supplier: **Wyo-Ben, Inc.**
1345 Discovery Drive
Billings, MT 59102 USA
Telephone: **800.548.7055**
Facsimile: **406.656.0748**
Emergency Phone Number: **CHEMTREC® 800.424.9300**

SECTION 2 — HAZARD IDENTIFICATION

Hazard Symbol: **Health Hazard**
Signal Word: **Warning**
Hazard Overview: **ACUTE HEALTH HAZARD**
May cause eye and respiratory irritation.
CHRONIC HEALTH HAZARD
Breathing crystalline silica can cause lung disease, including silicosis and lung cancer.

SECTION 3 — COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	Percent	ACGIH TLV-TWA	OSHA PEL-TWA*
Crystalline Silica, quartz	14808-60-7	1 – 6%	0.025 mg/m ³	<u>10 mg/m³</u> %SiO ₂ + 2

*More restrictive exposure limits may be enforced by some states, agencies, or other authorities.

Non-hazardous components > 94%

SECTION 4 — FIRST AID MEASURES

Inhalation: If inhaled, remove to a dust free area. Get medical attention if respiratory irritation develops or if breathing becomes difficult. Inhalation may aggravate existing respiratory illness.
Skin: Wash with soap and water until clear. Seek medical attention if irritation persists.
Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Ingestion: No adverse effects.
Notes to Physician: Treat Symptomatically.

SECTION 5 — FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not applicable
Flash Point/Range (C):	Not applicable
Flash Point Method:	Not applicable
Autoignition Temperature (F):	Not applicable
Autoignition Temperature (C):	Not applicable
Flammability Limits in Air – Lower (%):	Not applicable
Flammability Limits in Air – Upper (%):	Not applicable
Fire Extinguishing Media:	All standard firefighting media. (Caution slippery when wet.)
Special Exposure Hazards:	Not applicable
Special Protective Equipment for Firefighters:	Not applicable
NFPA Ratings:	Health 0, Flammability 0, Reactivity 0

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures:	Use appropriate protective equipment. Avoid creating and breathing dust.
Environmental Precautionary Measures:	None known.
Procedure for Cleaning/Absorption:	Collect using appropriate dustless method and hold for appropriate disposal.

SECTION 7 — HANDLING AND STORAGE

Handling Precautions:	This product contains quartz which may become airborne. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH/MSHA European Standard En 149, or equivalent certified for silica bearing dust, respirator when using this product. Material is slippery when wet. Promptly clean up spills to avoid breathing airborne dust.
Storage Information:	Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:	Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.
Personal Protective Equipment:	If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
Respiratory Protection:	Not normally needed. If significant exposures are possible use NIOSH/MSH respirator approved for silica bearing dust.
Hand Protection:	Normal work gloves.
Skin Protection:	Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.
Eye Protection:	Wear safety glasses or goggles to protect against exposure.
Other Precautions:	None known.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Color:	Light tan to gray as dry powder
Odor:	Odorless
pH:	8 – 10 (5% aqueous solution)
Specific Gravity @ 20 C (Water=1):	2.45 – 2.55
Density @ 20 C (lbs/gallon):	Not determined
Bulk Density @ 20 C (lbs/ft ³):	49 – 55
Boiling Point/Range (F):	Not applicable
Boiling Point/Range (C):	Not applicable
Freezing Point/Range (F):	Not applicable
Freezing Point/Range (C):	Not applicable
Vapor Pressure @ 20 C (mmHg):	Not applicable
Vapor Density (Air=1):	Not applicable
Percent Volatiles:	Not applicable
Evaporation Rate (Butyl Acetate=1):	Not applicable
Solubility in Water (g/100ml):	Insoluble, forms colloidal suspension
Solubility in Solvents (g/100ml):	Not applicable
VOCs (lbs/gallon):	Not applicable
Viscosity, Dynamic @ 20 C (centipoise):	240
Viscosity, Kinematic @ 20 C (centistokes):	Not applicable
Partition Coefficient/n-Octanol/Water:	Not applicable
Molecular Weight (g/mole):	Not applicable

SECTION 10 — STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid:	None anticipated
Incompatibility (Materials to Avoid):	Hydrofluoric Acid
Hazardous Decomposition Products:	None
Additional Guidelines:	Not applicable

SECTION 11 — TOXICOLOGICAL INFORMATION

Principle Route of Exposure:	Eye or skin contact, inhalation.
Inhalation:	Inhaled crystalline silica in the form of quartz from occupational sources is carcinogenic to humans (IARC, Group 1).
Skin Contact:	May cause mechanical skin irritation.
Eye Contact:	May cause eye irritation.
Ingestion:	None known
Aggravated Medical Conditions:	Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to respirable quartz-bearing dust.
Chronic Effects/Carcinogenicity:	<p>Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.</p> <p>Cancer Status: The International Agency for Research on Cancer (IARC, 1997) concludes that there is sufficient evidence in humans for carcinogenicity of inhaled crystalline silica from occupational sources (IARC Group 1), that carcinogenicity was not detected in all industrial circumstances studied and that carcinogenicity may depend on characteristics of the crystalline silica or on external factors affecting its biological activity. See IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997). The National Toxicology Program (NTP) classifies respirable crystalline silica as "Known to be a human carcinogen" (NTP 9th Report on Carcinogens, 2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).</p>
Other Information:	See "Adverse Effects of Crystalline Silica Exposure" published by the American Thoracic Society Medical Section of the American Lung Association, American Journal of Respiratory and Critical Care Medicine, Volume 155, pages 761-768 (1997).
Toxicity Tests	
Oral Toxicity:	Not determined (on FDA GRAS list; used as a food additive)
Dermal Toxicity:	Not determined (on FDA GRAS list; used in cosmetic preparations)
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity:	Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997).
Genotoxicity:	Not determined
Reproductive/Developmental Toxicity:	Not determined

SECTION 12 — ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air): Not determined

Persistence/Degradability: Not determined

Bio-accumulation: Not determined

Ecotoxicological Information

Acute Fish Toxicity: Not determined

Acute Crustaceans Toxicity: Not determined

Acute Algae Toxicity: Not determined

Chemical Fate Information: Not determined

Other Information: Not applicable

SECTION 13 — DISPOSAL CONSIDERATIONS

Disposal Method: Bury in a licensed landfill according to federal, state and local regulations.

Contaminated Packaging: Follow all applicable national or local regulations.

SECTION 14 — TRANSPORT INFORMATION

Land Transportation

DOT – Not Restricted

Canadian TDG – Not Restricted

ADR – Not Restricted

Air Transportation

ICAO/IATA – Not Restricted

Sea Transportation

IMDG – Not Restricted

Other Transportation Information

Labels: None

SECTION 15 — REGULATORY INFORMATION

US Regulations

US TSCA Inventory All components listed on inventory or are exempt.

EPA SARA Title III Extremely Hazardous Substances Not applicable

EPA SARA (311, 312) Hazard Class Acute Health Hazard
Chronic Health Hazard

EPA SARA (313) Chemicals This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).

EPA CERCLA/Superfund
Reportable Spill Quantity

Not applicable

EPA RCRA Hazardous Waste
Classification

If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.

California Proposition 65

This product contains crystalline silica (respirable) which is a substance known to the State of California to cause cancer.

Canadian Regulations

Canadian DSL Inventory

All components listed on inventory are exempt.

WHMIS Hazard Class

This product contains crystalline silica (respirable) and is classified as a Class D, Division 2, Subdivision A substance.

SECTION 16 — OTHER INFORMATION

Prepared 03/18/2015

Last Revision 06/08/2015

DISCLAIMER

All information presented herein is believed to be accurate; however, it is the user's responsibility to determine in advance of need that the information is current and suitable for their circumstances. No warranty or guarantee, expressed or implied is made by WYO-BEN, INC. as to this information, or as to the safety, toxicity or effect of the use of this product.