HALLIBURTON

SAFETY DATA SHEET

Product Trade Name: **PETRO BOND® II**

Revision Date: 03-Apr-2015 **Revision Number:** 8

1. Identification

1.1. Product Identifier

Product Trade Name: PETRO BOND® II
Synonyms: None
Chemical Family: Blend
Internal ID Code HM003730

1.2 Recommended use and restrictions on use

Application: Additive
Uses Advised Against No information available

1.3 Manufacturer's Name and Contact Details

Manufacturer/Supplier
Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By
Chemical Stewardship
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

1.4. Emergency telephone number

Emergency Telephone Number (281) 575-5000

2. Hazard(s) Identification

2.1 Classification in accordance with paragraph (d) of §1910.1200

Carcinogenicity	Category 1A - H350
Specific Target Organ Toxicity - (Repeated Exposure)	Category 1 - H372

2.2. Label Elements

Hazard Pictograms

Signal Word Danger

Hazard Statements

H350 - May cause cancer by inhalation
H372 - Causes damage to organs through prolonged or repeated exposure if inhaled

Precautionary Statements

Prevention

P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection

Response

P308 + P313 - IF exposed or concerned: Get medical advice/attention
P314 - Get medical attention/advice if you feel unwell

Storage

P405 - Store locked up

Disposal

P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains Substances	CAS Number
Crystalline silica, quartz	14808-60-7
Crystalline silica, cristobalite	14464-46-1
Crystalline silica, tridymite	15468-32-3

2.3 Hazards not otherwise classified

None known

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - US
Crystalline silica, quartz	14808-60-7	1 - 5%	Carc. 1A (H350) STOT RE 1 (H372)
Crystalline silica, cristobalite	14464-46-1	0.1 - 1%	Carc. 1A (H350) STOT RE 1 (H372)
Crystalline silica, tridymite	15468-32-3	0.1 - 1%	Carc. 1A (H350) STOT RE 1 (H372)

The exact percentage (concentration) of the composition has been withheld as proprietary.

4. First-Aid Measures

4.1. Description of first aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

4.2 Most important symptoms/effects, acute and delayed

Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. Fire-fighting measures

5.1. Extinguishing media

Suitable Extinguishing Media

All standard fire fighting media

Extinguishing media which must not be used for safety reasons

None known.

5.2 Specific hazards arising from the substance or mixture

Special Exposure Hazards

Not applicable.

5.3 Special protective equipment and precautions for fire-fighters

Special Protective Equipment for Fire-Fighters

Not applicable.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust.
See Section 8 for additional information

6.2. Environmental precautions

None known.

6.3. Methods and material for containment and cleaning up

Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

7. Handling and storage

7.1. Precautions for Safe Handling

Handling Precautions

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard En 149, or equivalent respirator when using this product. Material is slippery when wet.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store in a cool, dry location. Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container. Product has a shelf life of 24 months.

8. Exposure Controls/Personal Protection

8.1 Occupational Exposure Limits

Substances	CAS Number	OSHA PEL-TWA	ACGIH TLV-TWA

Crystalline silica, quartz	14808-60-7	$\frac{10\ mg/m^3}{\%SiO2 + 2}$	TWA: 0.025 mg/m³
Crystalline silica, cristobalite	14464-46-1	$\frac{1/2 \times 10\ mg/m^3}{\%SiO2 + 2}$	TWA: 0.025 mg/m³
Crystalline silica, tridymite	15468-32-3	$\frac{1/2 \times 10\ mg/m^3}{\%SiO2 + 2}$	0.05 mg/m³

8.2 Appropriate engineering controls

Engineering Controls Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.

8.3 Individual protection measures, such as personal protective equipment

Respiratory Protection Wear a NIOSH certified, European Standard EN 149 (FFP2/FFP3), AS/NZS 1715, or equivalent respirator when using this product.

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.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Powder **Color:** Red

Odor: Mild **Odor Threshold:** No information available

Property Remarks/ - Method	Values
pH:	No data available
Freezing Point/Range	No information available.
Melting Point/Range	No data available
Boiling Point/Range	No data available
Flash Point	No data available
Flammability (solid, gas)	No data available
upper flammability limit	No data available
lower flammability limit	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	2.5
Water Solubility	Insoluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.

10.2. Chemical Stability
Stable

10.3. Possibility of Hazardous Reactions
Will Not Occur

10.4. Conditions to Avoid
None anticipated

10.5. Incompatible Materials
Hydrofluoric acid.

10.6. Hazardous Decomposition Products
Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

11. Toxicological Information

11.1 Information on likely routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

11.2 Symptoms related to the physical, chemical and toxicological characteristics
Acute Toxicity

Inhalation	Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A). Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).
Eye Contact	May cause eye irritation.
Skin Contact	May cause skin irritation.
Ingestion	Irritation of the mouth, throat, and stomach.

Chronic Effects/Carcinogenicity 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 (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney disease.

11.3 Toxicity data

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Crystalline silica, quartz	14808-60-7	500 mg/kg (Rat) >15,000 mg/kg (Human)	No data available	No data available
Crystalline silica, cristobalite	14464-46-1	500 mg/kg (Rat)	No data available	No data available
Crystalline silica, tridymite	15468-32-3	500 mg/kg (Rat)	No data available	No data available

Substances	CAS Number	Skin corrosion/irritation
Crystalline silica, quartz	14808-60-7	Non-irritating to the skin
Crystalline silica, cristobalite	14464-46-1	Non-irritating to the skin
Crystalline silica, tridymite	15468-32-3	Non-irritating to the skin

Substances	CAS Number	Eye damage/irritation
Crystalline silica, quartz	14808-60-7	Mechanical irritation of the eyes is possible.
Crystalline silica, cristobalite	14464-46-1	Mechanical irritation of the eyes is possible.
Crystalline silica, tridymite	15468-32-3	Mechanical irritation of the eyes is possible.

Substances	CAS Number	Skin Sensitization
Crystalline silica, quartz	14808-60-7	Not regarded as a sensitizer.
Crystalline silica, cristobalite	14464-46-1	Not regarded as a sensitizer.
Crystalline silica, tridymite	15468-32-3	Not regarded as a sensitizer.

Substances	CAS Number	Respiratory Sensitization
Crystalline silica, quartz	14808-60-7	No information available
Crystalline silica, cristobalite	14464-46-1	No information available
Crystalline silica, tridymite	15468-32-3	No information available

Substances	CAS Number	Mutagenic Effects
Crystalline silica, quartz	14808-60-7	Not regarded as mutagenic.
Crystalline silica, cristobalite	14464-46-1	Not regarded as mutagenic.

Crystalline silica, tridymite	15468-32-3	Not regarded as mutagenic.

Substances	CAS Number	Carcinogenic Effects
Crystalline silica, quartz	14808-60-7	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure. Based on available scientific evidence, this substance is a threshold carcinogen with a mode of action involving indirect genotoxicity secondary to lung injury.
Crystalline silica, cristobalite	14464-46-1	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure. Based on available scientific evidence, this substance is a threshold carcinogen with a mode of action involving indirect genotoxicity secondary to lung injury.
Crystalline silica, tridymite	15468-32-3	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure. Based on available scientific evidence, this substance is a threshold carcinogen with a mode of action involving indirect genotoxicity secondary to lung injury.

Substances	CAS Number	Reproductive toxicity
Crystalline silica, quartz	14808-60-7	No information available
Crystalline silica, cristobalite	14464-46-1	No information available
Crystalline silica, tridymite	15468-32-3	No information available

Substances	CAS Number	STOT - single exposure
Crystalline silica, quartz	14808-60-7	No significant toxicity observed in animal studies at concentration requiring classification.
Crystalline silica, cristobalite	14464-46-1	No significant toxicity observed in animal studies at concentration requiring classification.
Crystalline silica, tridymite	15468-32-3	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
Crystalline silica, quartz	14808-60-7	Causes damage to organs through prolonged or repeated exposure if inhaled: (Lungs)
Crystalline silica, cristobalite	14464-46-1	Causes damage to organs through prolonged or repeated exposure if inhaled: (Lungs)
Crystalline silica, tridymite	15468-32-3	Causes damage to organs through prolonged or repeated exposure if inhaled: (Lungs)

Substances	CAS Number	Aspiration hazard
Crystalline silica, quartz	14808-60-7	Not applicable
Crystalline silica, cristobalite	14464-46-1	Not applicable
Crystalline silica, tridymite	15468-32-3	Not applicable

12. Ecological Information

12.1. Toxicity

Ecotoxicity Effects

Product Ecotoxicity Data

No data available

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Crystalline silica, quartz	14808-60-7	No information available	LL50 (96h) 10,000 mg/L (Danio rerio) (similar substance)	No information available	LL50 (24h) > 10,000 mg/L (Daphnia magna) (similar substance)
Crystalline silica, cristobalite	14464-46-1	No information available	LL0 (96h) 10,000 mg/L (Danio rerio) (similar substance)	No information available	LL50 (24h) > 10,000 mg/L (Daphnia magna) (similar substance)
Crystalline silica, tridymite	15468-32-3	No information available	LL0 (96h) 10,000 mg/L(Danio rerio) (similar substance)	No information available	LL50 (24h) > 10,000 mg/L (Daphnia magna) (similar substance)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Crystalline silica, quartz	14808-60-7	The methods for determining biodegradability are not applicable to inorganic substances.
Crystalline silica, cristobalite	14464-46-1	The methods for determining biodegradability are not applicable to inorganic substances.
Crystalline silica, tridymite	15468-32-3	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Crystalline silica, quartz	14808-60-7	No information available
Crystalline silica, cristobalite	14464-46-1	No information available
Crystalline silica, tridymite	15468-32-3	No information available

12.4. Mobility in soil

No information available

Substances	Mobility
Crystalline silica, quartz	No information available
Crystalline silica, cristobalite	No information available
Crystalline silica, tridymite	No information available

12.5 Other adverse effects

No information available

13. Disposal Considerations

13.1. Waste treatment methods

Disposal Method Bury in a licensed landfill according to federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

14. Transport Information

US DOT

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

US DOT Bulk

DOT (Bulk) Not applicable

Canadian TDG

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IMDG/IMO

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable

Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number:	Not restricted
UN Proper Shipping Name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable
Special Precautions for User: None

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	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	The California Proposition 65 regulations apply to this product.
MA Right-to-Know Law	One or more components listed.
NJ Right-to-Know Law	One or more components listed.
PA Right-to-Know Law	One or more components listed.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory or are exempt.

16. Other information

Preparation Information

Prepared By	Chemical Stewardship Telephone: 1-580-251-4335 e-mail: fdunexchem@halliburton.com
Revision Date:	03-Apr-2015

Reason for Revision Not applicable

Additional information
For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key or legend to abbreviations and acronyms
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
ErC50 – Effective Concentration growth rate 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
UN – United Nations
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data
www.ChemADVISOR.com/

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet

Safety Data Sheet

Revised November 2013

Section 1 – Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: Crystalline Silica (Quartz), Sand, Silica Sand

Trade name: Silica Sand-All Grades, Actisand®, Vita-S, RRW, Tip Top

CAS No.: 14808-60-7

1.2. Uses of the product and uses advised against

Use(s): Foundry Molds, Glass and Ceramic Melt Sand, Aggregate Filler, Filtration Media, Frac Sand

Prohibited use(s): **Warning!** Do not use this product for abrasive blasting.

1.3. Details of the product manufacturer and supplier of the safety data sheet

Manley Bros. of Indiana, Inc.
P.O. Box 80, 300 South Vermillion Road
Troy Grove, IL 61372
USA
Telephone: (815) 539 7486

1.4. Emergency Telephone Number

(815) 539-7486 (7:00 am – 4:00 pm Central Time, Monday-Friday)

Section 2 – Hazards Identification

2.1. General

This product contains respirable quartz as an impurity and may damage the lungs or cause cancer through prolonged or repeated inhalation. Depending on the type of handling and the ultimate use employed by the end-user, airborne respirable crystalline silica may be generated. Prolonged and/or massive inhalation of respirable crystalline silica may cause lung fibrosis, commonly referred to as silicosis. Occupational exposure to respirable crystalline silica dust should be monitored and controlled. This product should be handled with care to avoid dust generation.

2.2. Classification of the substance or mixture

GHS-US classification

STOT SE 3	H335
Carcinogen 1A	H350
STOT RE 1	H373

For the full text of H-phrases: see section 16

2.3. Label elements

GHS-US labeling

Hazard pictograms (GHS-US):

Signal word (GHS-US): Warning

Hazard statements (GHS-US)

H335 May cause respiratory irritation
H350 May cause cancer (inhalation)

H373	May cause damage to the lungs and/or respiratory system through prolonged or repeated inhalation

Precautionary statements (GHS-US)

P304+P34	IF INHALED: Remove person to fresh air and keep comfortable for breathing
P308+P313	If exposed or concerned: Get medical advice/attention
P312	Call a POISON CENTER/doctor if you feel unwell
P264	Wash hands and forearms thoroughly after handling
P270	Do not eat, drink or smoke when using this product
P202	Do not handle until all safety precautions have been read and understood
P280	Wear eye protection, protective clothing, and protective gloves
P260	Do not breathe dust
P271	Use only outdoors or in a well-ventilated area
P403+P233	Store in a well-ventilated place. Keep container tightly closed
P501	Dispose of contents/container according to local, regional, national, and international regulations

2.4. Other hazards

2.4.1. **Warning!** Do not use this product for abrasive blasting. NIOSH does not recommend the use of sand as an abrasive blasting medium. However NIOSH does recommend the use of a Type CE blasting helmet with supplied air if sand is used for the purpose of abrasive blasting.

2.4.2. Re-use of this product as an abrasive blasting medium can result in fractionation, thereby creating smaller airborne particle sizes than that of the original product. The resulting fractionation can increase the respirable fraction of airborne dust generated during re-use.

2.4.3. This product may become contaminated during use and/or re-use, and the user is responsible for evaluating workplace exposures to contaminants that may be generated as result. Employer selection and implementation of exposure controls or disposal options should consider both silica sand and the potential hazards of the material acted upon by the blasting or filtering operation.

2.4.4. Hazardous Decomposition or Byproducts: Silica will dissolve in hydrofluoric acid and produce a corrosive gas – silicon tetrafluoride.

Section 3 – Composition/information on ingredients

3.1. Substances

Name	Product identifier	% composition	GHS-US classification[1]
Quartz, SiO_2	CAS No. 14808-60-7 EINECS No. 238-878-4	>95%	Carcinogen 1A - H350 [2]STOT SE 3 - H335 [3]STOT RE 1 - H372

[1]For the full text of H-phrases: see section 16
[2]STOT SE = Specific target organ toxicity for a single exposure.
[3]STOT RE = Specific target organ toxicity for repeated exposure.

3.2. Mixtures

Not applicable

Section 4 – First Aid Measures

4.1. Description of first aid measures

General:	If medical advice is needed, have product label or safety data sheet at hand.
Inhalation:	If gross inhalation of silica sand occurs, remove the person to fresh air and keep comfortable for breathing, perform artificial respiration as needed, and obtain medical attention as needed.
Eye contact:	Wash the eye with water for at least 15 minutes while holding the eyelids wide open. If irritation persists, seek medical attention.
Skin:	Wash skin with soap and plenty of water. If abrasion occurs, or if irritation persists, seek medical attention.
Ingestion:	If large amounts are ingested do not induce vomiting. Seek medical advice.

4.2. Principal symptoms and health effects both acute and delayed

General:	Prolonged or repeated inhalation may damage lungs.
Inhalation:	May cause respiratory irritation, sneezing, coughing, burning sensation in the throat or constriction of the larynx, or difficulty breathing.
Eye contact:	Redness, irritation or pain.
Skin:	Prolonged contact with large amounts of this product may cause mechanical irritation. Dust may cause irritation in skin folds or by contact in combination with tight clothing.
Ingestion:	Abdominal pain.
Chronic symptoms:	Shortness of breath, wheezing, cough and sputum production. May cause cancer, silicosis, lung disease, autoimmune disease, tuberculosis, and nephrotoxicity.

4.3. Indication of any immediate medical attention and special treatment needed

No specific actions are required.

Section 5 – Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:	Use the extinguishing media appropriate for the surrounding fire.
Unsuitable extinguishing media:	None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard:	None. This product is not flammable.
Explosion hazard:	None. This product is not explosive.
Reactivity:	No hazardous combustion products or hazardous reactions are known.

5.3. Advice for firefighters

No specific firefighting instructions are required. Use normal individual personal protective equipment and fight fire from a reasonable distance using normal precautions.

Section 6 – Accidental Release Measures

6.1. Personal precautions, protective equipment, and emergency procedures

General:	Do not breathe dust. Avoid generating airborne dust. Collect the material using a method that does not produce dust [High-Efficiency Particulate Air

	(HEPA) vacuum or thoroughly wetting down the material]. Dispose of according to federal, state, and local regulations.
Protective equipment:	Wear protective clothing as appropriate for the work environment, including gloves, and eye/face protection. Use respiratory protection as recommended in Section 8 – Exposure controls/personal protection.
Emergency procedure:	Collect as any inert solid.

6.2. Environmental precautions

No special requirements.

6.3. Methods and material for containment and cleaning up

Avoid dry sweeping or otherwise generating dust during clean-up of spills. Use water spraying or vacuum cleaning systems to prevent airborne dust generation. Recover product by vacuuming or shoveling and place the material in a covered container appropriate for disposal.

6.4 Reference to other Sections

Refer to Sections 8 and 13 for additional information.

Section 7 – Handling and Storage

7.1. Precautions for safe handling

Work practices:	Avoid airborne dust generation. Provide appropriate exhaust ventilation at places where airborne dust is generated. Do not rely on vision to determine whether respirable silica is present in the air since it may be present without a visible cloud. In case of insufficient ventilation, wear respiratory protective equipment as recommended in Section 8. Handle packaged products carefully to prevent bursting. If you require advice on safe handling techniques, please contact your supplier or check the Good Practices Guide referenced in Section 16.
Hygiene practices:	Do not eat, drink, or smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures:	Minimize airborne dust generation and prevent wind dispersal during loading and unloading.
Precautions:	Store in a cool, dry place. Keep containers closed and store packaged products so as to prevent accidental bursting.

7.3. Specific end use(s)

Intended use(s):	Foundry Molds, Glass and Ceramic Melt Sand, Aggregate Filler, Filtration Media, Frac Sand.
Prohibited use(s):	**Warning!** Do not use this product for abrasive blasting.

Section 8 – Exposure Controls/Personal Protection

8.1. Control Parameters

Quartz (14808-60-7)		
USA OSHA	OSHA PEL for mineral dust 8-Hr. TWA	30/(%SiO_2 + 2) mg/m^3 total dust 10/(%SiO_2 + 2) mg/m^3 resp. fraction
USA NIOSH	NIOSH REL 8-Hr. TWA	0.05 mg/m^3
USA ACGIH	ACGIH TLV8-Hr. TWA	0.025 mg/m^3

CAUTION:
Crystalline silica exists in several forms, the most common of which is quartz. If crystalline silica (quartz) is heated to more than 870°C (1,598°F) it can change to a form of crystalline silica known as trydimite, and if crystalline silica (quartz) is heated to more than 1,470°C (2,678°F), it can change to a form of crystalline silica known as cristobalite. Crystalline silica as trydimite and cristobalite are more fibrogenic than crystalline silica as quartz. The OSHA/MSHA PEL for crystalline silica as trydimite and cristobalite is one-half the PEL for crystalline silica (quartz); the ACGIH TLV for crystalline silica as cristobalite is equal to the TLV for crystalline silica as quartz.

8.2. Exposure controls

8.2.1. Engineering controls

Minimize the generation of airborne dust. Use process controls, local exhaust ventilation, or other engineering controls to maintain airborne levels below the limits shown in Section 8.1. above. See also ACGIH, Industrial Ventilation – Recommended Practice (latest edition).

8.2.2. Personal protective equipment (PPE)

Respiratory Protection:

Avoid breathing dust produced during the use and handling of this product. The following chart specifies the types of respirators that may provide respiratory protection for crystalline silica. Use only NIOSH-approved respirators. This chart is based on the OSHA/MSHA PEL, assuming that the material involved is ≥98% crystalline silica, thereby resulting in a PEL of 0.1 mg/m^3. NIOSH recommends that workers wear the type CE abrasive blasting supplied air respirator operated in the positive-pressure mode (assigned protection factor (APF) of 2,000) if abrasive blasting operations involve crystalline silica sand.

Particulate Concentration	Minimum respiratory protection required (≥98%crystalline silica) PEL = 0.1 mg/m^3
≤1.0 mg/m^3 (10 x PEL)	• Half-mask air-purifying respirator with a P100 filter approved by NIOSH.
≤5.0 mg/m^3 (50 x PEL)	• Full facepiece air-purifying respirator with a P100 filter approved by NIOSH, or • Supplied-air respirator equipped with a hood or helmet and operated in a continuous-flow mode (for example, type CE abrasive blasting respirators operated in the continuous flow mode) approved by NIOSH.
≤10 mg/m^3 (100 x PEL)	• Any powered air-purifying respirator with a P100 filter approved by NIOSH, or • Any supplied-air respirator equipped with a hood or helmet and operated in a continuous-flow mode (for example, type CE abrasive blasting respirators operated in the continuous flow mode) approved by NIOSH.
≤100 mg/m^3 (1,000 x PEL)	• Full facepiece supplied-air respirator operated in pressure-demand mode, or • Any supplied-air respirator equipped with a hood or helmet and operated in a continuous-flow mode (for example, type CE abrasive blasting respirators operated in the continuous flow mode) approved by NIOSH.

Particulate Concentration	Minimum respiratory protection required (≥98%crystalline silica) PEL = 0.1 mg/m^3
Planned or emergency entry into environments containing unknown concentrations or concentrations >100 mg/m^3 (1,000 x PEL)	• Any self-contained breathing apparatus equipped with a full face piece and operated in a pressure-demand or other positive-pressure mode, or • Any supplied-air respirator equipped with a full face piece and operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in a pressure-demand or other positive-pressure mode.
Firefighting	• Any self-contained breathing apparatus equipped with a full face piece and operated in a pressure-demand or other positive-pressure mode approved by NIOSH.
Escape only	• Any air-purifying respirator with a P100 filter approved by NIOSH, or • Any appropriate escape-type, self-contained breathing apparatus.

If the workplace airborne crystalline silica concentration is unknown for a given task, conduct air monitoring to determine the appropriate level of respiratory protection needed. Consult with a certified industrial hygienist, your insurance risk manager, or the OSHA/MSHA Consultative Services group for more information. Ensure appropriate respirators are worn during and following the task, including clean-up or whenever airborne dust is present, in order to manage employee exposures below occupational health limits.

Eye protection: Goggles are recommended where airborne dust is produced.

Hand and skin protection: Impermeable gloves are recommended in situations where abrasion from sand may occur. Wash hands with soap and water after use.

Other: Wear protective clothing as appropriate for the work environment. Dusty clothing should be laundered before it is reused. Do not take dusty clothing home.

Section 9 – Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance:	Light buff to white granular solid
Odor:	Odorless
pH:	Not applicable
Vapor Pressure	Not applicable
Vapor Density	Not applicable
Boiling Point or Range, °F:	2,230°C (4,046°F) for quartz
Melting Point or Range, °F:	1,710°C (3,110°F) for quartz
Solubility In Water:	Insoluble
Specific Gravity:	2.65 (quartz)

9.2 Other information

No other information

Section 10 – Stability and Reactivity

10.1. Reactivity

Inert, not reactive.

10.2. Chemical stability

Stable under normal temperature and pressure.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4 Conditions to avoid

None known

10.5 Incompatible materials

Strong oxidizing agents such as fluorine, chlorine trifluoride, hydrogen fluoride, and oxygen difluoride.

10.6 Hazardous decomposition products

Silica will dissolve in hydrofluoric acid and produce a corrosive gas – silicon tetrafluoride.

Section 11 – Toxicological Information

A. SILICOSIS

The primary effect on humans from exposure to crystalline silica is silicosis, a lung disease caused by the inhalation and retention of respirable crystalline silica dust. Silicosis can exist in several forms; chronic (or ordinary), accelerated, or acute.

Chronic or Ordinary Silicosis is the most common form of silicosis, and can occur after many years of exposure to levels above the occupational exposure limits for airborne respirable crystalline silica dust. It is further defined as either simple or complicated silicosis.

Simple silicosis is characterized by lung lesions (shown as radiographic opacities) less than 1 centimeter in diameter, primarily in the upper lung zones. Often, simple silicosis is not associated with symptoms, detectable changes in lung function or disability. Simple silicosis may be progressive and may develop into complicated silicosis or progressive massive fibrosis (PMF).

Complicated silicosis or PMF is characterized by lung lesions (shown as radiographic opacities) greater than 1 centimeter in diameter. Although there may be no symptoms associated with complicated silicosis or PMF, the symptoms, if present, are shortness of breath, wheezing, cough and sputum production. Complicated silicosis or PMF may be associated with decreased lung function and may be disabling. Advanced complicated silicosis or PMF may lead to death. Advanced complicated silicosis or PMF can result in heart disease (cor pumonale) secondary to the lung disease.

Accelerated Silicosis can occur with exposure to high concentrations of respirable crystalline silica over a relatively short period; the lung lesions can appear within five (5) years of the initial exposure. The progression can be rapid. Accelerated silicosis is similar to chronic or ordinary silicosis, except that the lung lesions appear earlier and the progression is more rapid.

Acute Silicosis can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough and weight loss. Acute silicosis is fatal.

B. CANCER

IARC - The International Agency for Research on Cancer ("IARC") concluded that there was "*sufficient evidence* in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupational sources", and that there is "*sufficient evidence* in experimental animals for the carcinogenicity of quartz and cristobalite." The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is *carcinogenic to humans* (*Group 1*)." The IARC evaluation noted that not all industrial circumstances studied evidenced carcinogenicity. The monograph also stated that "[C]arcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." For further information on the IARC evaluation, see IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 68, "Silica, Some Silicates..." (1997).

NTP - The National Toxicology Program, in its Ninth Annual Report on Carcinogens, concluded that respirable crystalline silica is known to be a human carcinogen, based on sufficient evidence of carcinogenicity from studies in humans indicating a causal relationship between exposure to respirable crystalline silica and increased lung cancer rates in workers exposed to crystalline silica dust.

OSHA – Not regulated as a carcinogen.

There have been many articles published on the carcinogenicity of crystalline silica, which the reader should consult for additional information; the following are examples of recently published articles: (1) "Lung cancer among industrial sand workers exposed to crystalline silica," *Am J Epidemiol*, (153) 695-703 (2001); (2) "Crystalline Silica and the risk of lung cancer in the potteries", *Occup Environ Med*, (55) 779-785 (1998); (3) "Is Silicosis Required for Silica-Associated Lung Cancer?", *American Journal of Industrial Medicine*, (37) 252- 259 (2000); (4) " Silica, Silicosis, and Lung Cancer: A Risk Assessment," *American Journal of Industrial Medicine*, (38) 8-18 (2000); (5) "Silica, Silicosis, and Lung Cancer: A Response to a Recent Working Group Report," *Journal of Occupational and Environmental Medicine*, (42) 704-720 (2000).

C. AUTOIMMUNE DISEASES

There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis may be associated with the increased incidence of several autoimmune disorders, -- scleroderma, systemic lupus erythematosus, rheumatoid arthritis and diseases affecting the kidneys. For a review of the subject, the following may be consulted: "Occupational Exposure to Crystalline Silica and Autoimmune Disease", *Environmental Health Perspectives*, (107) Supplement 5, 793-802 (1999); "Occupational Scleroderma," *Current Opinion in Rheumatology*, (11) 490-494 (1999); "Connective tissue disease and silicosis," *Am J Ind Med*, (35), 375-381 (1999).

D. TUBERCULOSIS

Individuals with silicosis are at increased risk to develop pulmonary tuberculosis, if exposed to persons with tuberculosis. The following may be consulted for further information: *Occupational Lung Disorders*, Third Edition, Chapter 12, entitled "Silicosis and Related Diseases", Parkes, W. Raymond (1994); "Risk of pulmonary tuberculosis relative to silicosis and exposure to silica dust in South African gold miners," *Occup Environ Med*, (55) 496-502 (1998); "Occupational risk factors for developing tuberculosis", *Am J Ind Med*, (30) 148-154 (1996).

E. KIDNEY DISEASE

There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis is associated with the increased incidence of kidney diseases, including end stage renal disease. For additional information on the subject, the following may be consulted: "Kidney Disease and Silicosis", *Nephron*, (85) 14-19 (2000); "End stage renal disease among ceramic workers exposed to silica," *Occup Environ Med*, (56) 559-561 (1999); "Kidney disease and arthritis in a cohort study of workers exposed to silica," *Epidemiology*, (12) 405-412 (2001).

F. NON-MALIGNANT RESPIRATORY DISEASES

NIOSH has cited the results of studies that report an association between dusts found in various mining operations and non-malignant respiratory disease, particularly among smokers, including bronchitis, emphysema, and small airways disease. The results were not conclusive regarding an association among those with silicosis, only smokers, or the result of general mineral dust that does not contain silica. See *NIOSH Hazard Review – Health Effects of Occupational Exposure to Respirable Crystalline Silica*, published in April 2002, available from NIOSH, 4676 Columbia Parkway, Cincinnati, OH 45226, or at http://www.cdc.gov/niosh/02-129A.html.

Section 12 – Ecological Information

12.1. Toxicity

Not relevant.

12.2. Persistence and degradability

Not biodegradable.

12.3. Bioaccumulative potential

Not known to bioaccumulate.

12.4. Mobility in soil

Negligible.

12.5. Other adverse effects

No other specific adverse effects known.

Section 13 – Disposal Considerations

13.1. Waste treatment methods

General: The unused product/product residue may be landfilled.

Packaging: Material should be placed in covered containers to minimize generation of airborne dust.

RCRA: Crystalline silica (quartz) is not classified as a hazardous waste under the Resource Conservation and Recovery Act, or its regulations, 40 CFR §261 et seq.

NOTE: The above information applies to Manley Bros. Silica Sand only as sold. Since the product may become contaminated during use and/or re-use, it is the responsibility of the user to determine the appropriate disposal method.

Section 14 – Transport Information

14.1. UN Number

Not relevant.

14.2. UN proper shipping name

Not relevant.

14.3. Transport hazards class

Crystalline silica (quartz) is not a hazardous material for purposes of transportation under the U.S. Department of Transportation Table of Hazardous Materials, 49 CFR §172.101.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Not relevant.

14.6. Special precautions for user

No special precautions.

Section 15 – Regulatory Information

15.1. US Federal regulations

TSCA No.: Crystalline silica (quartz) is listed on the EPA TSCA inventory under CAS No. 14808-60-7.

SARA Section 311/312: Crystalline silica is listed under CAS No. 14808-60-7: Silica sand, all grades. Classified as an immediate and delayed health hazard.

RCRA: Crystalline silica (quartz) is not classified as a hazardous waste under the Resource Conservation and Recovery Act, or its regulations, 40 CFR §261 et seq.

CERCLA: Crystalline silica (quartz) is not classified as a hazardous substance under regulations of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 40 CFR §302.

Emergency Planning and Community Right to Know Act: Crystalline silica (quartz) is not an extremely hazardous substance under Section 302 and is not a toxic chemical subject to the requirements of Section 313.

Clean Air Act: Crystalline silica (quartz) mined and processed by Manley Bros. of Indiana was not processed with or does not contain any Class I or Class II ozone depleting substances.

FDA: Silica is included in the list of substances that may be included in coatings used in food contact surfaces, 21 CFR §175.300(b)(3)(xxvi).

NTP: Respirable crystalline silica (quartz) is classified as a known human carcinogen.

OSHA Carcinogen: Crystalline silica (quartz) is not listed.

15.2. US state regulations

California Proposition 65: Crystalline silica (quartz) is classified as a substance known to the state of California to be a carcinogen.

California Inhalation Reference Exposure Limit (REL): The California chronic REL for respirable crystalline silica is 3 ug/m^3. A chronic REL is an airborne level of a substance at or below which no adverse health effects are anticipated in individuals indefinitely exposed to the substance at that level.

Maine: Listed as a chemical of high concern.

Massachusetts Toxic Use Reduction Act: Respirable crystalline silica is considered toxic per the Massachusetts Toxic Use Reduction Act.

Minnesota: Listed on the state hazardous substances list.

New Jersey Right to Know Act: Quartz is considered hazardous for purposes of the Act and is also listed on the New Jersey special health hazards substances list.

Pennsylvania Worker and Community Right to Know Act: Quartz is considered hazardous for purposes of the Act, but it is not a special hazardous substance or an environmental hazardous substance.

15.3 International regulations

Canada: Manley Bros. of Indiana products, as naturally occurring substances, are on the Canadian DSL and categorized under WHMIS as D-2A

European Union: EINECS No.: 231-545-4

IARC: Crystalline silica (quartz) is classified in IARC as a Group 1 carcinogen.

15.4. Other regulations

National, state, provincial or local emergency planning, community right to know or other laws, regulations or ordinances may be applicable--consult applicable national, state, provincial or local laws.

Section 16 – Other Information

An electronic version of this SDS is available at http://www.manleybros.com/. More information on the effects of crystalline silica exposure may be obtained from the Occupational Safety and Health Administration (OSHA) (phone number: 1-800-321-OSHA; website: http://www.osha.gov) or from the National Institute for Occupational Safety and Health (NIOSH) (phone number: 1-800-35-NIOSH; website: http://www.cdc.gov/niosh).

HMIS:	
Health:	2 (See Section 2 and Section 11 of this SDS)
Flammability:	0
Reactivity:	0
Protective Equipment:	E

NFPA	
Health:	2
Flammability:	0
Reactivity:	0

MANLEY BROS. OF INDIANA, INC. COMPANY DISCLAIMER

This Safety Data Sheet was prepared in accordance with the requirements outlined in the Federal Register, Volume 77, No. 58, March 26, 2012, page 17574. In this final rule, OSHA modified its Hazard Communication Standard (HCS) to conform to the United Nations' Globally Harmonized System of Classification and Labelling of Chemicals (GHS). The modifications to the standard included but were not limited to revised criteria for classification of chemical hazards and a new specified format for Safety Data Sheets.

The information contained in this Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process. The information and recommendations set forth herein are based on technical data that Manley Bros. of Indiana, Inc. believes to be correct and reliable. It is intended for use by persons having technical skill and at their own discretion and risk. Since conditions of use are outside the control of Manley Bros. of Indiana, Inc. no warranties, expressed or implied, are made and no liability is assumed in connection with any use of this information. Any use of this data and information must be determined by the user to be in accordance with federal, state, and local laws and regulations. Customers and users of crystalline silica must comply with all applicable health and safety laws, regulations, and orders.

SAFETY DATA SHEET

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

1.1. Product identifier

Product Name: **STARFIRE ND 10W, 20W, 30W, 40W**

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

Recommended use: Motor Oil

Recommended restrictions: Not applicable

1.3. Details of the supplier of the safety data sheet

Manufacturer: Coolants Plus, Inc.
2570 Van Hook Ave.
Hamilton, OH. 45015

Information Phone: +01 888-258-8723

1.4. Emergency telephone number

Emergency phone number: CHEMTREC: +1 (800) 424-9300 International: +01 (703) 527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Not classified under GHS

2.2. Label elements

2.3. Other hazards

Hazards not otherwise classified: Avoid prolonged or repeated contact with used motor oil. Used motor oil has been shown to cause skin cancer in laboratory animals.

Unknown acute toxicity (GHS-US)

SECTION 3: Composition/information on ingredients

Chemical Name	%	CAS #	GHS Classification

Components not listed are not physical or health hazards as defined in 29 CFR 1910.1200 (Hazard Communication Standard).

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen.

Eyes None expected to be needed, however, use an eye wash to remove a chemical from your eye regardless of the level of hazard.

Skin Contact Wash with soap and water. Get medical attention if irritation develops or persists. Seek medical advice if symptoms persist.

Ingestion Minimal risk of harm if swallowed. Do not induce vomiting. Seek medical attention immediately. Provide medical care provider with this SDS.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms Not determined

4.3. Indication of any immediate medical attention and special treatment needed

Note to Doctor Aspiration during swallowing or vomiting may severely damage the lungs. If evacuation of stomach contents is necessary, use method least likely to cause aspiration.

SAFETY DATA SHEET

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable and Unsuitable Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical when fighting fires. Water or foam may cause frothing if liquid is burning but it still may be a useful extinguishing agent if carefully applied to the surface of the fire. Do not direct a stream of water into the hot burning liquid.

5.2. Special hazards arising from the substance or mixture

Fire and/or Explosion Hazards: Material may be ignited only if preheated to temperatures above the high flash point, for example in a fire.

5.3. Advice for firefighters

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self- contained breathing apparatus and full protective equipment.Use methods for the surrounding fire.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General Measures: No health affects expected from the clean up of this material if contact can be avoided. Follow personal protective equipment recommendations found in Section 8 of this SDS.

6.2. Environmental precautions

Do not flush to sewer.

Avoid runoff into storm sewers and ditches that lead to waterways.

Remove from water surface by skimming or with suitable absorbents. Do not use dispersants.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Dispose of according to Federal, State, Local, or Provincial regulations. Used fluid should be disposed of at a recycling center.

6.4. Reference to other sections

Follow all protective equipment recommendations provided in Section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Mildly irritating material. Avoid unnecessary exposure.

7.2. Conditions for safe storage, including any incompatibilities

Store in a cool dry place. Isolate from incompatible materials.

Incompatible materials

See Section 10.

7.3. Specific end use(s)

Motor Oil

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Chemical Name	Occupational Exposure Limits	Value
Oil mist, mineral	OSHA PEL	5 mg/m3
Oil mist, mineral	OSHA PEL	5 mg/m3
Oil mist, mineral	ACGIH TLV-TWA	5 mg/m3
Oil mist, mineral	ACGIH TLV-TWA	5 mg/m3
Oil mist, mineral	ACGIH STEL	10 mg/m3
Oil mist, mineral	ACGIH STEL	10 mg/m3
None.	IDLH	
None.	OSHA PEL-Skin Notation	

8.2. Exposure controls

Engineering Measures: Use local exhaust ventilation or other engineering controls to minimize exposures and maintain

SAFETY DATA SHEET

8.2. Exposure controls

	operator comfort.
Respiratory Protection	Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.
Respirator Type(s)	None required where adequate ventilation is provided. If airborne concentrations are above the applicable exposure limits, use NIOSH/MSHA approved respiratory protection.
Eye Protection	No special requirements under normal industrial use.
Skin Protection	Not normally considered a skin hazard. Where use can result in skin contact, practice good personal hygiene. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.
Gloves	Neoprene, Nitrile

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State	Liquid
Color	Amber
Odor	Mild
Odor threshold	Not determined
pH	Not determined
Freezing point	Not determined
Boiling Point	Not determined
Flash Point (°C)	204
Flash Point Method	COC
Evaporation Rate	Not determined
Upper Flammable/Explosive Limit, % in air	= 10
Lower Flammable/Explosive Limit, % in air	= 1
Flammability (solid, gas)	Not applicable
Vapor pressure	<0.20
Vapor Density	Not determined
Relative Density	0.86
Solubility in Water	Insoluble
Octanol/Water Partition Coefficient	Not determined
Autoignition Temperature	Not determined
Decomposition Temperature	Not determined
Viscosity(°C)	24.71

9.2. Other information

Volatile organic compound (VOC) content and percentage of volatiles	0.000000

SECTION 10: Stability and reactivity

10.1. Reactivity	No data available.
10.2. Chemical stability	Stable under normal conditions.
10.3. Possibility of hazardous reactions	Hazardous polymerization will not occur.
10.4. Conditions to avoid	Temperatures above the high flash point of this combustible material in combination with sparks, open flames, or other sources of ignition.Moisture (will lead to product performance degradation).
10.5. Incompatible materials	Strong oxidizing agents
10.6. Hazardous decomposition products	Carbon dioxide, Carbon monoxide

SAFETY DATA SHEET

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Ingestion Toxicity	No hazard in normal industrial use.Estimated to be > 5.0 g/kg.
Skin Contact	Likely to be non-irritating to skin based on animal data.No hazard in normal industrial use.
Absorption	Likely to be practically non-toxic based on animal data.
Inhalation Toxicity	No hazard in normal industrial use. Likely to be practically non-toxic based on animal data.
Eye Contact	This material is likely to be non-irritating to eyes based on animal data. No hazard in normal industrial use.
Sensitization	Non-hazardous under Respiratory Sensitization category.No data available to indicate product or components may be a skin sensitizer.
Mutagenicity	No data available to indicate product or any components present at greater than 0.1% is mutagenic or genotoxic.
Carcinogenicity	Not expected to cause cancer. This product meets the IP-346 criteria of <3% PAH's and is not considered a carcinogen by the International Agency for Research on Cancer.
Reproductive and Developmental Toxicity	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Specific target organ toxicity-Single exposure	Non-hazardous under Specific Target Organ Systemic Toxicity Single Exposure category.
Specific target organ toxicity-Repeated exposure	Non-hazardous under Specific Target Organ Systemic Toxicity Repeated Exposure category.
Long-Term (Chronic) Health Effects	No data available.
Aspiration toxicity	Non-hazardous under Aspiration category.
Other information	No data available.

Agents Classified by IARC Monographs

Not applicable	IARC Group 1
Not applicable	IARC Group 2A
Not applicable	IARC Group 2B

National Toxicity Program (NTP) Status

Not applicable	Known Human Carcinogen
Not applicable	Reasonably Anticipated To Be A Human Carcinogen

SECTION 12: Ecological information

12.1. Toxicity

Acute Aquatic ecotoxicity: Non-hazardous under Aquatic Acute Environment category.

Chronic Aquatic ecotoxicity: Non-hazardous under Aquatic Chronic Environment category.

12.2. Persistence and degradability

Biodegrades slowly.

12.3. Bioaccumulative potential

Bioconcentration may occur.

12.4. Mobility in soil

This material is expected to have essentially no mobility in soil. It absorbs strongly to most soil types.

12.5. Results of PBT and vPvB assessment

No data available.

12.6. Other adverse effects

Not determined

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal Methods

Dispose of according to Federal, State, Local, or Provincial regulations. Recycle used oil.

Waste Disposal Code(s)

Waste Description for Spent Product

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SECTION 13: Disposal considerations

Spent or discarded material is non-hazardous according to environmental regulations.

Contaminated packaging:

Recycle containers whenever possible.

Recycle containers whenever possible.

SECTION 14: Transport information

DOT	**Proper Shipping Name:**	No data available.
	UN Number:	Not regulated for road transport
	Hazard Class:	No data available.
	Packing Group:	No data available.
DOT Basic Description	Not classified as hazardous for transport (DOT, TDG, IMO/IMDG, IATA/ICAO).	
IMDG	**Proper Shipping Name:**	No data available.
	UN Number:	No data available.
	Hazard Class:	No data available.
	Packing Group:	No data available.
	Marine Pollutant:	No data available.
IATA	**Proper Shipping Name:**	No data available.
	UN Number:	No data available.
	Hazard Class:	No data available.
	Packing Group:	No data available.

SECTION 15: Regulatory information

Chemical Inventories

TSCA Status	All components of this material are on the US TSCA Inventory or are exempt.
U.S. State Restrictions:	Not applicable
WHMIS:	Uncontrolled product according to WHMIS classification criteria.

Chemical Name	Regulation	CAS #	%
None.	CERCLA		
None.	SARA 313		
None.	SARA EHS		
None.	TSCA 12b		

U.S. State Regulations

Chemical Name	Regulation	CAS #	%
None.	California Prop 65-Cancer		
None.	California Prop 65- Dev. Toxicity		
None.	California Prop 65-Reprod -fem		
None.	California Prop 65-Reprod-male		
None.	Massachusetts RTK List		
None.	New Jersey RTK List		
None.	Pennsylvania RTK List		
None.	Rhode Island RTK List		
None.	Minnesota Hazardous Substance List		

HMIS Ratings:		NFPA Ratings:	
Health:	1	Health:	1
Fire:	1	Fire:	1

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Reactivity:	0	Reactivity:	0
PPE:	B		

KEY: 0 - Least 1 - Slight 2 - Moderate 3 - High 4 – Extreme

SECTION 16: Other information

Revision Date	1/11/2016 11:15:12 AM
Supersedes:	12/21/2015 2:41:27 PM
References	No data available.
Disclaimer	This safety data sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in the data sheet which we have received from outside sources and we believe the information to be correct, but cannot guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product in a safe manner and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either expressed or implied.