



SAFETY DATA SHEET

Version: 1.3
Revision Date: 6/24/2020

This material is to be used for research purposes only under the supervision of a technically qualified individual. The toxicological properties may have not been completely characterized. Please determine your responsibilities under your local regulations.

1. Identification of the substance or mixture and of the supplier

Identification

Product Name: PURE CETANE
Additional identification
Chemical name: Not applicable for mixtures.

Recommended use and restriction on use

Recommended use: Not Determined
Restrictions on use:

Details of the supplier of the safety data sheet

Company Name: Opti-Lube Inc
Address: 1646 W Business Park Drive, Suite B
Orem, UT 84058
USA
Telephone: 801-491-3717

Emergency telephone number:

FOR TRANSPORT EMERGENCY CALL (+1) 801-850-8553, OR WITHIN THE USA 801-491-3717

2. Hazard(s) identification

Hazard Classification

Physical Hazards

Flammable liquids Category 4

Health Hazards

Acute toxicity (Oral) Category 4

Acute toxicity (Inhalation -
dust and mist) Category 4

Acute toxicity (Dermal) Category 4

Label Elements

Hazard Symbol:



Signal Word:

Hazard Statement:

H227

H302 + H312 +
H332

H411

Warning

Combustible liquid.

Harmful if swallowed, in contact with skin or if inhaled.

Toxic to aquatic life with long lasting effects.



SAFETY DATA SHEET

Version: 1.3
Revision Date: 6/24/2020**Precautionary Statement:**

Prevention:

P280	Wear protective gloves. Wear eye or face protection. Wear protective clothing.
P210	Keep away from flames and hot surfaces. - No smoking.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P261	Avoid breathing vapor.
P270	Do not eat, drink or smoke when using this product.
P264	Wash thoroughly after handling.

Response:

P391	IF INHALED: remove person to fresh air and keep comfortable for breathing. IF ON SKIN: Wash with plenty of water. IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. Specific measures (see this label). Take off contaminated clothing and wash before reuse. In case of fire: Use CO ₂ , dry chemical or foam extinction. Water can be used to cool and protect exposed material. Collect spillage.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth.
P302 + P352 + P312 + P362+P364	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or physician if you feel unwell. Take off contaminated clothing and wash it before reuse.

Storage:

P403	Store in a well-ventilated place.
P235	Keep cool.

Disposal:

P501	Dispose of contents and container in accordance with local, regional, national and international regulations.
------	---

Other hazards which do not result in GHS classification: None known.

3. Composition/Information on Ingredients

General Information

Chemical name	CAS number	Percent by Weight
2-Ethylhexyl nitrate	27247-96-7	90 - 100%

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

4. First-aid Measures

Description of necessary first aid measures:

Ingestion: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if



SAFETY DATA SHEET

Version: 1.3
Revision Date: 6/24/2020

the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Inhalation:

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin Contact:

Wash with plenty of soap and water. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 20 minutes. Get medical attention if adverse health effects persist or are severe. If necessary, call poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Most important symptoms and effects, both acute and delayed:**Potential acute health effects**

Eye contact:	No known significant effects or critical hazards.
Inhalation:	Harmful if inhaled.
Skin contact	Harmful in contact with skin.
Ingestion	Harmful if swallowed.

Over-exposure signs/symptoms

Eye contact:	No known significant effects or critical hazards.
Inhalation:	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Ingestion	No known significant effects or critical hazards.

Indication of immediate medical attention and special treatment needed

Notes to physician: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments: No specific treatment.

Protection of first-aiders No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

5. Fire-fighting measures

Extinguishing media:

Suitable (and unsuitable) extinguishing media



SAFETY DATA SHEET

Version: 1.3
Revision Date: 6/24/2020

Suitable extinguishing media: Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media: Do not use water jet or water-based fire extinguishers.

Specific hazard arising from the chemical: Combustible liquid. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products: Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides

Advice for firefighters, Special protective equipment and precautions for firefighters:

Special fire fighting procedures: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for firefighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Methods For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up:

Spill: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

7. Handling and Storage

Precautions for safe handling:



SAFETY DATA SHEET

Version: 1.3

Revision Date: 6/24/2020

Protective measures:	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not reuse container. Prevent heating above 100 °C due to severe risk of pressure rise and explosion (refer to section 10). Maximal recommended handling temperature : 60 °C. (refer to section 10).
Advice on general occupational hygiene:	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.
Conditions for safe storage, including any incompatibilities:	Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Store in a ventilated area in tightly closed containers equipped with means of preventing the product from reaching 100 °C (Refer to section 10). Maximal recommended storage temperature: 40 °C. (refer to section 10).
Maximum Storage Temperature:	Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Store in a ventilated area in tightly closed containers equipped with means of preventing the product from reaching 100 °C (Refer to section 10). Maximal recommended storage temperature: 40 °C. (refer to section 10).

8. Exposure Controls/personal Protection

Control Parameters:

United States

Occupational Exposure Limits

Chemical Name	Type	Exposure limit values	Source
2-Ethylhexyl nitrate		None	

Canada

Occupational Exposure Limits

None.

Appropriate engineering Controls:

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.



SAFETY DATA SHEET

Version: 1.3
Revision Date: 6/24/2020

Individual protection measures:

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin Protection:

Hand Protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory Protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Physical state: liquid [Slightly viscous.] (20 °C).
Form: liquid
Color: Clear. Colorless to light yellow.
Oder: Pungent. Fatty. Fruity. Ester.
Oder threshold: No data available
pH: No data available
Melting point point: <-50°C (<-58°F)
Boiling point: No data available
Flash point: Closed cup: 81°C (177.8°F) [NF T6 0-103]
Evaporation rate: No data available
Flammability (solid, gas): No data available

Upper/lower limit on flammability or explosive limits

Flammability limit – upper (%): No data available
Flammability limit – lower (%): Lower: 0.25%



SAFETY DATA SHEET

Version: 1.3
Revision Date: 6/24/2020

Explosive limit – upper (%):	No data available
Explosive limit – lower (%):	No data available
Vapor pressure (air=1):	0.027 kPa (0.20252 mm Hg) (20 °C).
Vapor density:	No data available
Relative density:	0.96 @ 20°C

Solubility(ies)

Solubility	Easily soluble in the following materials: Methanol. Hydrocarbons. Chlorinated solvent. Very slightly soluble in the following materials: cold water and hot water.
Solubility in water:	0.126 g/l (20 °C).
Partition coefficient (n-octanol /water):	5.24
Auto-ignition temperature:	215°C (419°F)
Decomposition temperature:	130°C (266°F)
Viscosity:	Dynamic (room temperature): 1.7 mPa·s (1.7 cP) Kinematic (room temperature): 0.018 cm ² is (1.8 cSt)

Other information

Flow time (ISO 2431):	Not available.
Molecular weight:	175.23 g/mole

10. Stability and reactivity

Reactivity:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability:	Chemically stable under normal storage (60°C in handling and 40°C in storage) (refer to section 7).
Possibility of Hazardous Reactions:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to Avoid:	Avoid all possible sources of ignition (heat, spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas. Vapors may be explosive.
Incompatible Materials:	Extremely reactive or incompatible with the following materials: oxidizing materials and combustible materials.
Hazardous Decomposition Products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological Information

Information on toxicological effects:

Acute toxicity:	There is no data available.
Irritation/Corrosion	There is no data available.
Sensitization:	There is no data available.
Mutagenicity	There is no data available.
Carcinogenicity	There is no data available.
Reproductive toxicity:	There is no data available.



SAFETY DATA SHEET

Version: 1.3
Revision Date: 6/24/2020

Teratogenicity: There is no data available.

Specific target organ toxicity (single exposure): There is no data available.

Information on toxicology effects, Acute toxicity: There is no data available.

Specific Target Organ Toxicity – Repeat Exposure: There is no data available.

Aspiration Hazard There is no data available.

Information on the likely routes of exposure: Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects:

Eye contact: No known significant effects or critical hazards.

Inhalation: Harmful if inhaled.

Skin contact: Harmful in contact with skin.

Ingestion: Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics:

Eye contact: No known significant effects or critical hazards.

Inhalation: No known significant effects or critical hazards.

Skin contact: No known significant effects or critical hazards.

Ingestion: No known significant effects or critical hazards.

Delayed and immediate effects and also chronic effects from short and long term exposure:

Short term exposure:

Potential immediate effects: No known significant effects or critical hazards.

Potential delayed effects: No known significant effects or critical hazards.

Long term exposure: No data available

Potential immediate effects: No known significant effects or critical hazards.

Potential delayed effects: No known significant effects or critical hazards.

Potential chronic health effects:

General: No known significant effects or critical hazards.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.



SAFETY DATA SHEET


Version: 1.3
Revision Date: 6/24/2020**Numerical measures of toxicity****Acute toxicity estimates** There is no data available.**12. Ecological Information****Toxicity:** There is no data available.**Persistence and degradability:** There is no data available.**Bioaccumulative potential:**

Product/ingredient name	LogPow	BCF	BCF
2-Ethylhexyl nitrate	5.24	-	high

Mobility in soil:Soil/water partition:
coefficient (KOC) Not available.**Other adverse effects:** No known significant effects or critical hazards.**13. Disposal considerations****Disposal Methods:**

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14. Transport Information**DOT**




UN Number: NA 1993
UN Proper Shipping Name: COMBUSTIBLE LIQUID, N.O. S. (2-Ethylhexyl nitrate).
Transport Hazard Class(es) 
Class: —
Labels: —
Packing Group: III
Environmental hazards: Yes

TDG Classification

UN Number: UN 3082
UN Proper Shipping Name: ENVIROMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2-Ethylhexyl nitrate)



SAFETY DATA SHEET

Version: 1.3
Revision Date: 6/24/2020**Transport Hazard Class(es)**Class: 9 
Labels:
Packing Group: III
Environmental hazards: Yes**IMDG**UN Number: UN 3082
UN Proper Shipping Name: ENVIROMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2-Ethylhexyl nitrate)**Transport Hazard Class(es)**Class: 9 
Labels:
Packing Group: III
Environmental hazards: Yes**IATA**UN Number: UN 3082
UN Proper Shipping Name: ENVIROMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2-Ethylhexyl nitrate)**Transport Hazard Class(es)**Class: 9 
Labels:
Packing Group: III
Environmental hazards: Yes**Additional information:****DOT Classification:** Non-bulk packages (less than or equal to 119 gal) of combustible liquids, that are marine pollutants, are not regulated as hazardous materials, unless transported by vessel. This product is not regulated as a marine pollutant when transported on inland waterways in sizes of ≤ 5 L or ≤ 5 kg or by road, rail, or inland air in non-bulk sizes, provided the packagings meet the general provisions of §§ 173.24 and 173.24a.**TDG Classification:** Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.43-2.45 (Class 9), 2.7 (Marine pollutant mark). Non-bulk packages of this product are not regulated as dangerous goods when transported by road or rail.**IMDG** This product is not regulated as a dangerous good when transported in sizes of ≤ 5 L or ≤ 5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.**IATA** This product is not regulated as a dangerous good when transported in sizes of ≤ 5 L or ≤ 5 kg, provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.**Special precautions for user:** Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Shipping descriptions may vary based on mode of transport, quantities, temperature of the material, package size, and/or origin and destination. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transport of the material. Review classification requirements before shipping materials at elevated temperatures.



SAFETY DATA SHEET

Version: 1.3
Revision Date: 6/24/2020

15. Regulatory Information

US Federal Regulations

TSCA Section 8(a) CDR Exempt/Partial exemption:
Not determined

United States inventory (TSCA 8b):
This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)
Not listed

Clean Air Act Section 602 Class I Substances
Not listed

Clean Air Act Section 602 Class II Substances
Not listed

DEA List I Chemicals(Precursor Chemicals)
Not listed

DEA List II Chemicals (Essential Chemicals)
Not listed

SARA 302/304

Composition/information on ingredients:
No products were found.

SARA 304 RQ Not applicable.

SARA 311/312

Classification: Fire hazard
Immediate (acute) health hazard

Composition/information on ingredients:

Name	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
2-Ethylhexyl nitrate	Yes	No	No	Yes	No

SARA 313 (TRI Reporting)

There is no data available.

US State Regulations:

- Massachusetts:** This material is not listed.
- New York:** This material is not listed.
- New Jersey:** This material is not listed.
- Pennsylvania:** This material is not listed.

US. California Proposition 65

No products were found.

Canada:

Canadian lists:

- Canadian NPRI:** This material is not listed.
- CEPA Toxic substances:** This material is not listed.



SAFETY DATA SHEET

Version: 1.3
Revision Date: 6/24/2020

Canada inventory: This material is listed or exempted.

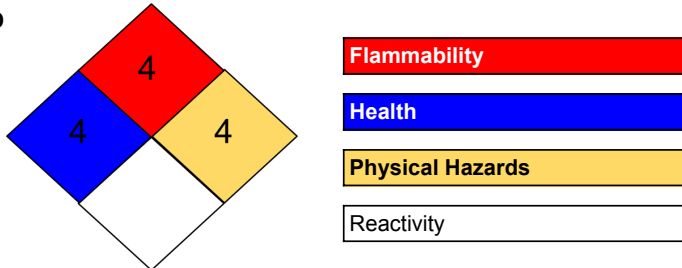
16. Other information, including date of preparation or last revision

HMIS Hazard ID

Health	4
Flammability	4
Physical Hazards	4

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating Not Possible;
*Chronic health effect

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating Not Possible;

Issue Date: 6/24/20
Version #: 1.3
Source of Information: Internal Company data and other publically available resources.
Further Information: Contact Supplier (see Section 1)

Disclaimer: As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim and liability for any use of this product. Information contained herein is believed to be true and accurate but all statements or suggestions are made without warranty, expressed or implied, regarding accuracy of the information, the hazards connected with the use of the material of the results to be obtained from the use thereof. Compliance with all applicable feral, state, and local regulations remains the responsibility of the user.