

## SAFETY DATA SHEET (SDS)

*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:** Single Clean

#### Additional identification

**Chemical name:** Mixture  
**CAS-NO.:** Not applicable.

#### Recommended use and restriction on use

**Recommended use:** Not Determined.  
**Restrictions on use:** Not Determined.

#### Details of the supplier of the safety data sheet

##### Supplier

**Company name:** Opti-Lube  
**Address:** 1195 S 1680 W  
Orem, UT 84058  
USA  
**Telephone:** 801-491-3717

#### Emergency telephone number:

FOR TRANSPORT EMERGENCY CALL CHEMTREC (+1) 703 527 3887, OR WITHIN THE USA 801 491 3717

### 2. Hazard(s) identification

#### Hazard Classification of the substance or mixture

##### Physical Hazards

Flammable liquids Category 4

##### Health Hazards

Acute toxicity (Oral) Category 4  
Acute toxicity (Dermal) Category 4  
Acute toxicity (Inhalation—dust and mist) Category 4  
Skin corrosion/Irritation Category 2  
Serious eye damage/Eye irritation Category 2A

##### Unknown toxicity

Acute toxicity, Oral 0.0 %  
Acute toxicity, Dermal 0.0 %  
Acute toxicity, Inhalation, vapor 0.0 %  
Acute toxicity, Inhalation, dust or mist 0.0 %

#### Label Elements:



<b>Signal Word:</b>	Warning
<b>Hazard Statement:</b>	H227: Combustible liquid. H315: Causes skin irritation. H319: Causes serious eye irritation. H332: Harmful if inhaled. Harmful if swallowed.
<b>Precautionary Statement:</b>	
<b>Prevention:</b>	P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No Smoking. P261: Avoid breathing dust/fume/gas/mist/vapors/spray. P264: Wash hands thoroughly after handling. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/protective clothing/eye protection/face protection. Do not eat, drink or smoke when using this product. Avoid release to the environment.
<b>Response:</b>	P302+P352: IF ON SKIN: Wash with plenty of water. P332+P313: If skin irritation occurs: Get medical advice/attention. P321: Specific treatment (see this label). P362+P364: Take off contaminated clothing and wash before reuse. P304-P340: IF INHALED: remove person to fresh air and keep comfortable for breathing. P312: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. 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. P370-P378: In case of fire: Use CO <sub>2</sub> , dry chemical or foam extinction. Water can be used to cool and protect exposed material. Collect spillage.
<b>Storage:</b>	P403-P235: Store in a well-ventilated place. Keep cool.
<b>Disposal:</b>	P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
<b>Other hazards which do not result in GHS classification:</b>	None identified.

### 3. Composition/Information on Ingredients

#### Mixtures

Chemical Name:	CAS-NO.	Percent by Weight
Petroleum Naphtha	64742-48-9	10-15%
2-Ethylhexanol	104-76-7	5-10%
2-Ethylhexyl nitrate	27247-96-7	45-50%

## 4. First-aid measures

### Description of first aid measures

<b>Ingestion:</b>	Do NOT induce vomiting. Aspiration of material due to vomiting can cause chemical pneumonitis which can be fatal. If vomiting occurs naturally, the casualty should lean forward to reduce the risk of aspiration. Rinse mouth. Call a POISON CENTER/doctor/physician if you feel unwell.
<b>Inhalation:</b>	Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.
<b>Eye Contact:</b>	Rinse Cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
<b>Skin Contact:</b>	Wash skin thoroughly with soap and water. Call POISON CENTER/doctor/physician if you feel unwell. Launder contaminated clothing before reuse.

**Most important symptoms and effects, both acute and delayed:** See section 11.

### Indication of immediate medical attention and special treatment needed

**Treatment:** Treat symptomatically.

## 5. Fire-fighting measures

**General Fire Hazards:** Move containers from fire area if you can do so without risk.

### Suitable (and unsuitable) extinguishing media

**Suitable extinguishing media:** CO<sub>2</sub>, Dry chemical or foam. Water can be used to cool and protect exposed material.

**Unsuitable extinguishing media:** Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazard arising from the chemical:** Vapors may cause a flash fire or ignite explosively. Prevent buildup of vapors or gases to explosive concentrations. Vapors may travel considerable distance to a source of ignition and flash back. Water may cause splattering. Container may rupture on heating. A solid stream of water will spread the burning material. Material creates a special hazard because it floats on water. See section 10 for additional information.

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

**Special fire fighting Procedures:** Material may explode under confinement and high temperature. The alkyl nitrate contained in this product may undergo a self-accelerating exothermic reaction if heated above 212°F (100°C).

**Special protective equipment for firefighters:** Firefighters must use standard protective equipment, including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

## 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures:</b>	Ventilate closed spaces before entering them. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep upwind. Keep unauthorized personnel away. See Section 8 of the SDS for Person Protective Equipment.
<b>Methods and material for containment and cleanup:</b>	Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Eliminate all ignition sources if safe to do so. Dike far ahead of larger spill for later recovery and disposal. Pick up free liquid for recycle and/or disposal. Residual liquid can be absorbed on inert material. Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas.
<b>Environment Precautions:</b>	Avoid release to the environment. Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so.
<b>References to other sections:</b>	See Section 8 and 13 for additional information.

## 7. Handling and Storage

<b>Precautions for safe handling:</b>	Product can accumulate static charge when handled. Equipment should be grounded. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid breathing dust/fumes/gas/mist/vapors/spray. Avoid contact with skin. Avoid contact with eyes. Observe good industrial hygiene practices. Use only in well-ventilated areas. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Launder contaminated clothing before reuse. Avoid environmental contamination. DO NOT HEAT.
<b>Maximum Handling Temperature:</b>	45°C/113°F
<b>Conditions for safe storage, including any incompatibilities:</b>	Keep cool. Store in a well-ventilated place. Do not store near potential sources of ignition. Keep at temperature not exceeding 40°C. Keep away from combustible materials.
<b>Maximum Storage Temperature:</b>	40°C/104°F

## 8. Exposure Controls/personal Protection

**Control Parameters:**  
**Occupational Exposure Limits**

Chemical Name:	Type	Exposure Limit Values	Source
Mineral oil- Inhalable fraction	TWA	5 mg/m <sup>3</sup>	US. ACGIH Threshold Limit Values (03 2014)

**Other Exposure Limits**

Chemical Name:	Type	Exposure Limit Values	Source
2-Ethylhexyl nitrate	TWA	1 ppm	

**Appropriate engineering Controls:**

Mechanical ventilation or local exhaust ventilation is required. Use material in well ventilated area only. Adequate ventilation should be provided so that exposure limits are not exceeded.

**Individual protection measures, such as personal protective equipment**

**General information:**

Provide easy access to water supply and eye wash facilities. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Supplementary local exhaust ventilation, closed systems, respiratory and eye protection may be needed in special circumstances, such as poorly ventilated spaces, heating, evaporating of liquids from large surfaces, spraying of mists, mechanical generation of dusts, drying of solids, ect. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

**Eye/face protection:**

Wear tight-fitting goggles or face shield. If potential for splash or mist exists, wear chemical goggles or face shield.

**Skin Protection**

**Hand Protection:**

Use nitrile or neoprene gloves. Use good industrial hygiene practices. In case of skin contact, wash hands and arms with soap and water.

**Other:**

Wear apron or protective clothing in case of contact.

**Respiratory Protection:**

Use respirator with a combination organic vapor and high efficiency filter cartridge if recommended exposure limit is exceeded. A respiratory protection program compliant with all applicable regulations must be followed whenever workplace conditions require the use of a respirator. Use appropriate respiratory protection if exposure to dust particles, mist or vapors is likely. Use self-contained breathing apparatus for entry into confined space, for other poorly ventilated areas and for large spill cleanup sites.

**Hygiene measures:**

Observe good industrial hygiene practices. Do not eat, drink or smoke when using this product. Avoid contact with skin. Wash hands after handling.

**9. Physical and chemical properties**

**Information on basic physical and chemical properties**

**Appearance**

<b>Physical state:</b>	liquid
<b>Form:</b>	liquid
<b>Color:</b>	Dark amber
<b>Oder:</b>	Pungent
<b>Oder threshold:</b>	No data available
<b>pH:</b>	3.74 – 4.14
<b>Freezing point:</b>	No data available
<b>Boiling point:</b>	No data available
<b>Flash point:</b>	196 °F (76 °C) (Pensky-Martens Closed Cup)
<b>Evaporation rate:</b>	No data available

<b>Flammability (solid, gas):</b>	No data available
<b>Upper/lower limit on flammability or explosive limits</b>	
<b>Flammability limit – upper (%):</b>	No data available
<b>Flammability limit – lower (%):</b>	No data available
<b>Explosive limit – upper (%):</b>	No data available
<b>Explosive limit – lower (%):</b>	No data available
<b>Vapor pressure (air=1):</b>	No data available
<b>Vapor density:</b>	No data available
<b>Relative density:</b>	0.932 – 0.972 60.1°F (15.6°C)
<b>Solubility(ies)</b>	
<b>Solubility in water:</b>	Insoluble in water.
<b>Solubility (other):</b>	No data available
<b>Partition coefficient (n-octanol/water):</b>	No data available
<b>Auto-ignition temperature:</b>	No data available
<b>Decomposition temperature:</b>	No data available
<b>Viscosity:</b>	10 MM2/S(104°F) (40°C) 15 MM2/S (25°C) (77°F) 04 MM2/S (-18°C) (-.40°F)
<b>Other information</b>	
<b>Pour Point Temperature:</b>	-71°F (57°C)
<b>Percent volatile:</b>	50% (percent by weight)
<b>Bulk density:</b>	7,94lb/gal 77°F (25°C)

## 10. Stability and reactivity

<b>Reactivity:</b>	No data available
<b>Chemical stability:</b>	Material is stable under normal conditions.
<b>Possibility of Hazardous Reactions:</b>	May undergo self-accelerating, exothermic reaction if heated above 212 °F.
<b>Conditions to Avoid:</b>	Heat, sparks, flames. Do not expose to excessive heat, ignition sources or oxidizing materials. Heat may cause the containers to explode.
<b>Incompatible Materials:</b>	Strong oxidizing agents. Copper and cooper alloys. Strong acids. Strong bases. Nitriles.
<b>Hazardous Decomposition Products:</b>	Thermal decomposition or combustion may generate smoke, carbon monoxide, carbon dioxide and other products of incomplete combustion.

## 11. Toxicological Information

### Information on likely routes of exposure

<b>Inhalation:</b>	Harmful if inhaled.
<b>Ingestion:</b>	Harmful if swallowed.
<b>Skin contact:</b>	Harmful if contact with skin.
<b>Eye contact:</b>	Causes serious eye irritation.

### Information on toxicology effects, Acute toxicity

#### Oral

<b>Product:</b>	ATEmix 10-2,000 mg/kg. Ingestion of 2-ethylhexyl nitrate may cause vasodilation resulting in reduced blood pressure and other cardiovascular effects. Symptoms include: headache, dizziness, nausea, fatigue, heart palpitations, confusion and possible loss of consciousness.
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### Dermal

Product: ATEmix 1,000-2,000 mg/kg.  
Absorption of 2-ethylhexyl nitrate through the skin may cause vasodilation resulting in reduced blood pressure and other cardiovascular effects. Symptoms include: headache, dizziness, nausea, fatigue, heart palpitations, confusion and possible loss of consciousness.

### Inhalation

Product: ATEmix (, 4 h): 1 -2 mg/L. Dusts, mists and fumes.  
Inhalation of 2-ethylhexyl nitrate may cause vasodilation resulting in reduced blood pressure and other cardiovascular effects. Symptoms include: headache, dizziness, nausea, fatigue, heart palpitations, confusion and possible loss of consciousness.

### Skin Corrosion/Irritation

Product: Causes skin irritation. Remarks: Prolonged or repeat skin contact as from clothing wet with material may cause dermatitis. Symptoms may include: redness, edema, drying, and cracking of the skin. Alcohol may enhance the toxic effects.

### Serious Eye Damage/Eye Irritation

Product: Remarks: Causes serious eye irritation.

**Respiratory sensitization:** No data available.

### Skin sensitization:

Petroleum naphtha Classification: Not a skin sensitizer. (Literature)

2\_Ethylhexanol Classification: Not a skin sensitizer. (Literature)

### Specific Target Organ Toxicity – Single Exposure

Petroleum naphtha If materials is misted or if vapors are generated from heating, exposure may cause irritation of mucous membranes and the upper respiratory tract.

2-Ethylhexyl nitrate If materials is misted or if vapors are generated from heating, exposure may cause irritation of mucous membranes and the upper respiratory tract.

### Aspiration Hazard

Petroleum naphtha Material can be aspirated into the lungs during the act of swallowing or vomiting. This could result in severe injury to the lungs and death.

### Chronic effects

**Carcinogenicity:** No data available.

### IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified.

### US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified.

### US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):

No carcinogenic components identified.

### Germ Cell Mutagenicity:

2-Ethylhexanol This material has not exhibited mutagenic or genotoxic potential in laboratory tests.

Petroleum naphtha In vitro and in vivo genetic toxicity studies were negative.

2-Ethylhexyl nitrate This material has not exhibited mutagenic or genotoxic potential in laboratory tests.

**Reproductive toxicity:**

2-Ethylhexanol No evidence of adverse effects were found in a developmental toxicity study of 2-ethylhexanol in rats. Doses up to 3 ml/kg applied to the skin during the most critical part of the gestation period produced evidence of toxicity to mothers, but no evidence of injury in the developing offspring. In a previous study, birth defects were observed by oral administration, an unlikely route of exposure in the workplace.

**Specific Target Organ Toxicity – Repeated Exposure:**

2-Ethylhexanol Repeated exposure may result in kidney and liver damage. A 14-day dermal toxicity study of 2-ethylhexanol in rats showed blood effects, decreased spleen weight and decreased triglycerides. Unknown: Target Organ(s): Blood, Liver, Spleen, Kidney.

**12. Ecological Information**

**Ecotoxicity**

**Fish**

Product	LC 50 (Zebra Fish, 4d): 2mg/l NOEC (Zebra Fish, 4 d): 1.52 mg/l
2-Ethylhexyl nitrate	LC 50 (Zebra Fish, 4d): 2mg/l NOEC (Zebra Fish, 4 d): 1.52 mg/l
Petroleum naphtha	LC 50 (Rainbow Trout, 4 d): >1 000 mg/l
2-Ethylhexanol	LC 50 (Fathead Minnow, 4 d): 28,2 mg/l LC50 (Golden Orfe, 4 d): 17, 1 mg/l NOEC (Golden Orfe, 4 d): 14 mg/l

**Aquatic Invertebrates**

Product	EC50 (Water flea (Daphnia magna), 2d): > 12.6 mg/l
2-Ethylhexyl nitrate	EC50 (Water flea (Daphnia magna), 2d): > 12.6 mg/l
Petroleum naphtha	EC 50 (Water flea (Daphnia magna), 2 d): >1 000 mg/l
2-Ethylhecanol	EC 50 (Water flea (Daphnia magna), 2 d): 39 mg/l

**Toxicity to Aquatic Plants**

Product	EC50 (Alga, 3 d): 3.222 mg/l
2-Ethylhexyl nitrate	EC50 (Alga, 3 d): 3.22 mg/l
Petroleum naphtha	LC 50 (Green algae (Selenastrum capricornutum), 3 d): >1 000 mg/l EC 50 (Green algae (Selenastrum capricornutum), 3 d): >1 000 mg/l
2-Ethylhecanol	EC 50 (Green algae (Selenastrum capricornutum), 3 d): 16.6 mg/l

**Toxicity to soil dwelling organisms**

No data available

**Sediment Toxicity**

No data available

**Toxicity to Terrestrial Plants**

No data available

**Toxicity to above-ground organisms**

No data available

**Toxicity to microorganisms**

Product	EC50 (Sludge, 0.3 d): > 1,000 mg/l
2-Ethylhexyl nitrate	EC50 (Sludge, 0.3 d): > 1,000 mg/l
2-Ethylhexanol	EC 50 (Pseudomonas putida, 0.1 d): 540 mg/l EC 50 (Sludge, 0.5 d): > 100mg/l



**Persistence and Degradability**

**Biodegradation**

Product	Miscellaneous, 0%, 28 d, Not really degradable.
2-Ethylhexyl nitrate	Miscellaneous, 0%, 28 d, Not really degradable.
Petroleum naphtha	OECD TG 301 F, 80%, 28 d, Readily biodegradable
2-Ethylhexanol	OECD TG 302 B, 95%, 5 d, Readily biodegradable OECD TG 301 C, 100%, 14 d, Readily biodegradable

**Bioaccumulative Potential**

**Bioconcentration Factor (BCF)**

2-Ethylhexanol	Bioconcentration Factor (BCF): 25,35 (Calculated)
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**Partial Coefficient n-octanol / water (log Kow)**

Product	Log Kow: 5.24 (Measured)
2-Ethylhexyl nitrate	Log Kow: 5.24 (Measured)
2-Ethylhexanol	Log Kow: 2,9 (Measured)

**Mobility**

Product	soil - 3.75
2-Ethylhexyl nitrate	soil - 3.75
2-Ethylhexanol	soil - 1.42

**Other Adverse Effects:** No data available.

**13. Disposal considerations**

**Disposal Methods:** Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations  
Dispose of packaging or containers in accordance with local, regional, national and international regulations. Empty container contains product residue which may exhibit hazards of product.

**Contaminated Packaging:** Container packaging may exhibit hazards.

**14. Transport Information**

**DOT**

Special precautions for user: None established

**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:	9
EmS No.:	F-A, S-F
Packing Group:	III
Marine Pollutant:	Yes
Limited Quantity	5.00L
Expected Quantity	E1
Special precautions for user:	None established

#### **IATA**

UN Number:	UN 3082
UN Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2-Ethylhexyl nitrate)
Transport Hazard Class(es)	
Class:	9
Labels:	9MI
Marine Pollutant:	Yes
Packing Group:	III
Limited Quantity:	30.00KG
Expected Quantity:	E1
Environmental Hazards	Marine Pollutant
Special Precautions for user:	None established
Other information	
Passenger and cargo aircraft:	Allowed
Cargo aircraft only:	Allowed

#### **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

None known.

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.

## **15. Regulatory Information**

#### **US Federal Regulations**

##### **TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

None present or none present in regulated quantities.

##### **Superfund Amendments and Reauthorization Act of 1986 (SARA)**

#### **Hazard categories**

Fire	Immediate
	(Acute) Health
	Hazards

#### **SARA 302 Extremely Hazardous Substance**

#### **SARA 304 Emergency Release Notification**

#### **SARA 311/312 Hazardous Chemical**

#### **SARA 313 (TRI Reporting)**

This product may contain chemical(s) regulated under the superfund Amendments and Reauthorization Act (SARA). For additional information please contact Opti-Lube Customer Assistance: [sales@opti-lube.com](mailto:sales@opti-lube.com)

#### **US State Regulations**

##### **US. California Proposition 65**

No ingredient regulated by CA Prop 65 Present.

#### **Inventory Status**

##### **Australia (AICS)**

All components are in compliance with chemical notification requirements in Australia.

##### **Canada (DSL/NDL)**

All components are in compliance with the Canadian Environmental Protection Act and are present on the Domestic Substance List.

**China (IECSC)**

All components of this product are listed on the Inventory of Existing Chemical Substances in China.

**European Union (REACH)**

To obtain information on the REACH compliance status of this product, please email us at sales@opti-lube.com

**Japan (ENCS)**

All components are in compliance with the Chemical Substances Control Law of Japan

**Korea (ECL)**

All components are in compliance in Korea

**New Zealand (NZloc)**

All components are in compliance with chemical notification requirements in New Zealand.

**Philippines (PICCS)**

All components are in compliance with the Philippines Toxic Substance and Hazardous and Nuclear Wastes Control Act of 1990 (R.A. 6969).

**Switzerland (SWISS)**

All components are in compliance with the Environmentally Hazardous Substances Ordinance in Switzerland.

**Taiwan (TCSCA)**

All components of this product are listed on the Taiwan Inventory.

**United States (TSCA)**

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

*The information that was used to confirm the compliance status of this product may deviate from the chemical information shown in Section 3.*

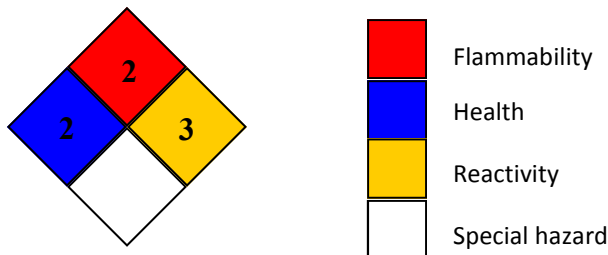
**16. Other information, including date of preparation or last revision**

**HMIS Hazard ID**

<b>Health</b>	*	2
<b>Flammability</b>		2
<b>Physical Hazards</b>		3

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:** 05/28/2015  
**Version #:** 1.0  
**Source of Information:** Internal Company data and other publically available resources.  
**Further Information:** Contact Supplier (see Section 1)  
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