

# FUEL OILS

## SPECIFICATION DATA SHEET

### U.L.S. Derv

Ultra Low Sulphur Diesel (ULSD) is a distillate fuel manufactured from selected crude oils and carefully blended to impart desirable performance related properties to the fuel, such as quick starting, smoke control and reduced particulates, whilst providing exceptional low temperature operation and protection from injector and pump wear.

ULSD is designed for use in both high and medium speed diesel engines. It exceeds the latest requirements of the relevant British and European Specification BS EN 590 and fully meets UK, Ultra Low Sulphur Diesel specification. Operating at low temperature can be maintained when fuel properties are seasonally adjusted.

	<b>MINIMUM</b>	<b>MAXIMUM</b>	<b>TYPICAL</b>
Appearance	Clear		Clear
Water Content, PPM	-	200	55
Density @ 15 ° C, kg/m <sup>3</sup>	820	835	-
Cetane Number	51	-	52
Strong Acid Number	Zero	Zero	Zero
Filterability (CFPP) °C Winter	-	-15	-12
Filterability (CFPP) °C Summer	-	-5	-94
Viscosity, Kinematic @ 40 °C, mm /s (cSt)	2.0	5.5	3.4
Sulphur, % Wt	-	.001	Trace
Copper Corrosion, 3 hours @ 50 °C	-	Class 1	Class 1
Flash Point, (Closed Cup, PM) °C	56	-	80
Carbon Residue, on 10% distillation residue, % Wt	85.0	30	12
Sediment, % Wt	-	0.01	<0.01
Ash Content, % Wt	-	0.01	<0.01
<b>Distillation Characteristics</b>			
% Volume Recovered @ 250° C	-	65	30
% Volume Recovered @ 350° C	85	-	85
<b>GROSS CALORIFIC VALUES</b>			
KW/hr/1			10.93
MJ/l			39.30
Kcal/kg			10891

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### U.L.S. Diesel Safety Information

#### 1. CHEMICAL PRODUCT and COMPANY INFORMATION (rev. Jan-2008)

##### Fuel Oils

Unit 3-4, Burnett Rd  
Darent Industrial Park  
Slade Green  
Erith, Kent. DA8 2LG.

#### 2. COMPOSITION and INFORMATION ON INGREDIENTS

A complex combination of hydrocarbons with carbon numbers in the range C9 and higher produced from the distillation of petroleum crude oil.

#### 3. HAZARDS IDENTIFICATION

##### EMERGENCY OVERVIEW

##### CAUTION!

##### OSHA/NFPA COMBUSTIBLE LIQUID - SLIGHT TO MODERATE IRRITANT - EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED

Moderate fire hazard. Avoid breathing vapours or mists. May cause dizziness and drowsiness. May cause moderate eye irritation and skin irritation. Long-term, repeated exposure may cause skin cancer. If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs).

##### EYES

Contact with eyes may cause mild irritation.

##### SKIN

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

##### INGESTION

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhoea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

##### INHALATION

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

##### WARNING:

The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

##### CHRONIC EFFECTS and CARCINOGENICITY

Similar products have produced skin cancer and systemic toxicity in laboratory animals following repeated applications. The significance of these results to human exposures has not been determined – see Section 11 Toxicological Information.

##### MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash).

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### 4. FIRST AID MEASURES

#### EYES

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

#### SKIN

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or with waterless hand cleanser. Obtain medical attention if irritation or redness develops.

#### INGESTION

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

#### INHALATION

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

### 5. FIRE FIGHTING MEASURES

#### FLAMMABLE PROPERTIES:

FLASH POINT: 100 °F (56 °C) minimum PMCC

AUTOIGNITION POINT: 494 °F (257 °C)

LOWER EXPLOSIVE LIMIT (%): 0.6

UPPER EXPLOSIVE LIMIT (%): 7.5

#### FIRE AND EXPLOSION HAZARDS

OSHA and NFPA Class 2 COMBUSTIBLE LIQUID

Vapours may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapours can burn in the open or explode in confined spaces. Being heavier than air, vapours may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

#### EXTINGUISHING MEDIA

SMALL FIRES:

Any extinguisher suitable for Class B fires, dry chemical, CO<sub>2</sub>, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

#### FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full face piece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water.

For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

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### 6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY'S SPILL CONTINGENCY OR EMERGENCY RESPONSE PLAN.

Evacuate non essential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact. Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapours. The proper use of water spray may effectively disperse product vapours or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

### 7. HANDLING and STORAGE HANDLING PRECAUTIONS

Handle as a combustible liquid. Keep away from heat, sparks, excessive temperatures and open flame!

No smoking or open flame in storage, use or handling areas. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when this product is loaded into tanks previously containing low flash point products

#### STORAGE PRECAUTIONS

Keep containers closed and clearly labeled. Use approved vented storage containers. Empty product containers or vessels may contain explosive vapours. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area.

Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow recommended practice "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and "Cleaning Petroleum Storage Tanks."

#### WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent or harsh abrasive skin cleaners for washing this product from exposed skin areas.

Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse.

Use care when laundering to prevent the formation of flammable vapours which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

### 8. EXPOSURE CONTROLS and PERSONAL PROTECTION

#### ENGINEERING CONTROLS

Use adequate ventilation to keep vapour concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

#### EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

#### SKIN PROTECTION

Gloves constructed of nitrile, neoprene, or PVC are recommended. Chemical protective clothing based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

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### RESPIRATORY PROTECTION

An approved air-purifying respirator with organic vapour cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odour or irritation. Protection provided by air-purifying respirators is limited.

Seek additional guidance from manufacturers on respiratory protection selection.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

### 9. PHYSICAL and CHEMICAL PROPERTIES

#### APPEARANCE

Clear liquid

#### ODOUR

Distinct, petroleum distillate odour

#### BASIC PHYSICAL PROPERTIES

BOILING RANGE: 340 to 700 °F (171 to 371 °C)

VAPOUR PRESSURE: 0.009 psia @ 70 °F (21 °C)

VAPOUR DENSITY (air = 1): > 1.0

SPECIFIC GRAVITY (H<sub>2</sub>O = 1): AP 0.87

PERCENT VOLATILES: 100 %

EVAPORATION RATE: Slow; varies with conditions

SOLUBILITY (H<sub>2</sub>O): Negligible

### 10. STABILITY and REACTIVITY

#### STABILITY

Stable. Hazardous polymerization will not occur

#### CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Keep away from strong oxidizers; Viton ®; Fluorel ®

#### HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

### 11. TOXICOLOGICAL PROPERTIES

#### ACUTE TOXICITY

Acute Oral LD50 (rat): 14.5 ml/kg

Acute Dermal LD50 (rabbit): > 5 ml/kg

Guinea Pig Sensitization: negative

Primary dermal irritation: moderately irritating (Draize mean irritation score - 3.98 rabbits)

Draize eye irritation: mildly irritating (Draize score, 48 hours, unwashed - 2.0 rabbits)

#### CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenic: IARC: NO NTP: NO OSHA: NO ACGIH: 1997 NOIC: A3

Dermal carcinogenicity: positive - mice

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

This product is similar to Diesel Fuel. IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A) and NIOSH regards it as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

#### MUTAGENICITY (genetic effects)

Material of similar composition has been positive in a mutagenicity study.

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### 12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas and waterways. Report spills and releases to appropriate authorities.

### 13. DISPOSAL CONSIDERATIONS

Use approved or registered fuel suppliers or waste disposal organizations

### 14. TRANSPORTATION INFORMATION

PROPER SHIPPING NAME: ULTRA LOW SULPHUR DIESEL

HAZARD CLASS & PACKING GROUP: 3, PG III

DOT IDENTIFICATION NUMBER: NA 1993

DOT SHIPPING LABEL: FLAMMABLE LIQUID

May be reclassified for transportation as a COMBUSTIBLE LIQUID under conditions of DOT 49 CFR 173.120(b)(2).

#### CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported to the proper authorities immediately.

#### DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

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Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed.

Furthermore, vendee assumes the risk in their use of the material.