

SubmergeDeep® 200-Series Marine Hydraulic Fluids

Biodegradable Dielectric Heat Transfer and Hydraulic Fluids

Engineered Fluids' SubmergeDeep 200-Series Marine Hydraulic Fluids are nontoxic, biodegradable lubricants designed for use in hydraulic and circulating lubricant applications where risk to the environment must be minimized. SubmergeDeep 200-Series Marine Hydraulic Fluids are 100% synthetic and are non-compressible for use at ocean depths. They feature low thermal expansion, excellent lubricity, high dielectric strength, and minimal environmental impact.

Key Features:

- **Excellent Antiwear and Lubricity Characteristics:** Protects equipment; meets industry standard performance tests for friction, antioxidant, antifoaming
- **High Dielectric Strength and Excellent Heat Transfer**
- **Fire Resistant:** Higher flashpoints provide a significant safety margin
- **Non-Toxic, Biodegradable, Global Warming Potential = 0**
- **User Safety:** Non-allergenic. Can be used without extensive protective equipment
- **Ashless, metal-free formula**

Composition: SubmergeDeep SD-200 Marine Hydraulic Fluids are made from 100% synthetic hydrocarbons at Engineered Fluids' ISO 9001-Certified manufacturing facilities in Texas. SubmergeDeep SD-200 Marine Hydraulic Fluids are made under tight manufacturing controls; product characteristics are stringently tested and verified before shipment.

Applications: Engineered Fluids' SubmergeDeep 200-Series Marine Hydraulic Fluids offer excellent lubricity and antiwear characteristics to ensure the smooth action of mechanical components in sensitive environments, such as:

- **Marine Remotely Operated Vehicles and Robotics**
- **Natural Resource Exploration and Extraction**
- **Offshore Wind Power Generation**
- **Marine Cranes and Construction**
- **Dams and Hydroelectric Electricity Generation**
- **Mining and Forestry**

Engineered Fluids' SubmergeDeep Marine Hydraulic Fluids effectively solve the challenges of equipment protection in sensitive habits, ensuring the reliable operation of critical mechanical systems. SubmergeDeep Marine Hydraulic Fluids are biodegradable, nontoxic, nonallergenic, non-halogenated, and 100% ozone safe.

Recycling, Recovery, Reprocessing and Disposal:

Engineered Fluids offers a full range of laboratory testing, maintenance, recycling, reprocessing and disposal services for all its products. This includes a 100% closed-cycle Product Collection and Reprocessing Program, eliminating waste and enabling 100% environmentally friendly operations. Contact your Engineered Fluids representative for more information.

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Characteristics of SubmergeDeep® 200-Series Marine Hydraulic Fluids

	SD-210	SD-220	SD-230	SD-240
Typical Application	Hydraulic Fluid and Circulating Lubricant			
ISO Viscosity Grade	ISO 10	ISO 16	ISO 46	ISO 68
Ashless Formula	Yes	Yes	Yes	Yes
Antiwear Protection	Yes	Yes	Yes	Yes
Appearance	Clear, amber tint			
Fluid Behavior	Non-Compressible, Dielectric, Foam-Resistant			
Dielectric Strength ¹	>25kV			
Resistivity (ohm-cm)	>1x10 ¹⁰			
Lubricity: 4-Ball Wear Test, Scar Length, mm	0.39	0.35	0.32	0.28
Pour Point (°C)	-54	-54	-54	-54
Flash Point (°C)	194	210	240	288
Density, g/cc @ 15.6°C	0.82	0.82	0.82	0.84
Coefficient of Thermal Expansion, /C	0.00067	0.00066	.00065	.00065
Kinematic 40°C	7.6	18	45	68
Viscosity (cSt) 100°C	2.6	4.5	8.1	10
Therm Cond. (W/m*K) @ 40C	0.1359	0.1459	0.1459	0.1585
Specific Heat (KJ/Kg*K) 40°C	2.2094	2.2060	2.2060	2.2200
Global Warming Potential	0	0	0	0
Biodegradability CECL33T ²	Readily Biodegradable	Readily Biodegradable	Readily Biodegradable	Readily Biodegradable
Biodegradability OECD301b ²	Readily Biodegradable	Readily Biodegradable	Readily Biodegradable	Readily Biodegradable
Biodegradability ASTM D5864 ²	>80%	>80%	>70%	>60%
Materials Compatibility Warranty	Yes	Yes	Yes	Yes
Shelf Life (Yrs) ³	25	25	25	25

1) Dielectric Strength is measured using ASTM D1816 method with 2mm electrode gap

2) Biodegradation is stated for a 28-Day Test Period. Biodegradation continues to occur after the test period.

3) See product specific warranty statement for terms and conditions. Shelf-Life duration is stated for an original sealed steel container, Shelf-life period is included in the warranty period.

Need more information? Please contact us on
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Manufactured
in the United States

