

# Mobil DTE 790 Series

## Premium Performance Turbine Oils

### Product Description

Mobil DTE 790 Series lubricants are premium performance turbine oils that are engineered to meet the requirements of the most severe steam turbine designs and operation, with maximum oil charge life. Mobil DTE 790 Series oils are based on proprietary, very high quality, hydrotreated base stocks and selected additives which provide outstanding resistance to oxidation and chemical degradation over time, which is exemplified by exceptional color stability, a key factor in assessing oil stability in some regions of the world. Mobil DTE 790 lubricants also exhibit excellent water separability, resistance to emulsion formation and anti-foaming characteristics which provides efficient operation, and good air release properties which is critical for hydraulic control mechanisms.

The exceptional oxidation stability performance of Mobil DTE 790 oils has resulted in outstanding performance in even the most severe, and largest capacity steam turbine applications. These products have an outstanding reputation for equipment reliability and avoiding unscheduled downtime. This reputation is exemplified by the very high percent of nuclear turbine operators who choose Mobil DTE 790 lubricants. Their performance in service is also recognized to provide very long charge life, in excess of conventional turbine oils, and high resistance to deposit formation and filter plugging. While primarily engineered for steam turbine service, Mobil DTE 790 Series oils also find application in non-geared gas turbine service.

The performance features of Mobil DTE 790 Series oils translate into excellent equipment protection, reliable operation, with reduced downtime and extended oil charge life. Mobil DTE 790 Series oils, in the appropriate grade, meet or exceed the requirements of major steam and gas turbine builders.

### Features & Benefits

The Mobil DTE family of products is well known and highly regarded worldwide based on their outstanding performance and the R&D expertise and the global technical support which stand behind the brand. The exceptional performance of one series of oils which make up this family, Mobil DTE 790 Series, has made it the choice of steam turbine operators around the world for many decades.

Close contacts with steam turbine designers worldwide is the key factor in our understanding of the challenges for the lubricant in the most advanced designs. Our research scientists use this information, along with proprietary tests, to simulate the severity of the latest generation turbine designs in advancing Mobil DTE 790 formulation technology.

For Mobil DTE 790 Series oils this work has resulted in a formulation based on a special hydrotreated basestock, along with specially chosen additives to provide exceptional oxidation stability and deposit control which results in superb equipment protection, highly reliable operation and long oil charge life. A review of the features, advantages and potential benefits of the product are shown below:



Features	Advantages and Potential Benefits
Superb oxidation, chemical and color stability	Extended oil charge life and reduced oil changeout costs
	Reduced filter plugging and equipment fouling for reduced downtime and maintenance costs
	High level of turbine system reliability and reduced unanticipated downtime
Excellent water separability and foam control	Improved operating efficiency and reduced operating expenses
Very good air release properties	Avoids erratic operation and pump cavitation, reducing pump replacement

## Applications

Mobil DTE 790 Series lubricants are premium performance turbine oils engineered to meet the requirements of: circulation systems of direct-connected steam turbine and gas turbines; ring-oiled bearings of geared and direct-connected turbines; hydraulic control systems of turbines. Specific applications include:

- Electric power generation by utilities, including nuclear plants.
- Electric power generation by industrial users, such as paper mills

## Specifications & Approvals

Mobil DTE 790 Series meets or exceeds the following industry specifications	797	798	799
Alstom Power Sweden MAT 812101	X		
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GEC Alstom NBA P 50001	X	X	
GE GEK 28143-A	X	X	
GE GEK 46506-D	X		
GE GEK 27070	X		
DIN 51515-1	L-TD 32	L-TD 46	L-TD 100

Mobil DTE 790 Series has the following builder approvals	797	798	799
Alstom Power HTGD 90 117, non-geared	X	X	
Siemens TLV 9013 04, non-geared	X	X	



## Typical Properties

Mobil DTE 790 Series	797	798	799
ISO Viscosity Grade	32	46	
Viscosity, ASTM D 445			
cSt @ 40°C	30	44	63
cSt @ 100°C	5.4	6.8	8.5
Viscosity Index, ASTM D 2270	110	106	103
Pour Point, °C, ASTM D 97	-30	-30	-30
Flash Point, °C, ASTM D 92	221	232	252
Density @ 15°C, ASTM D 1298, kg/l	0.85	0.86	0.87
TOST, ASTM D 943, Hours to 2 NN	6500	5500	4500
Rust Prevention, ASTM D 665:			
Distilled Water	Pass	Pass	Pass
Sea Water	Pass	Pass	Pass
Water Seperability, ASTM D 1401, Min. to 3 ml emulsion @ 54°C	15	20	25
Copper Strip Corrosion, ASTM D 130, 3 hrs @ 100°C	1A	1A	
Foam Test, ASTM D 892, Seq I, Tendency / Stability, ml/ml	20/0	20/0	25/0
Air Release, ASTM D 3427, 50° C, min.	2	3	4

## Health & Safety

Based on available information, this product is not expected to produce adverse effects on health when used for the intended application and the recommendations provided in the Material Safety Data Sheet (MSDS) are followed. MSDS's are available upon request through your sales contract office, or via the Internet. This product should not be used for purposes other than its intended use. If disposing of used product, take care to protect the environment.

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