Mobil

Fenso Series

Mobil Industrial , Canada

Cold Quenching Oils

Product Description

The Fenso™ product line was developed to provide excellent long life performance in cold quenching operations. FENSO 90 is a premium high speed quench oil. FENSO 90 is formulated with a highly effective accelerator concentrate that is designed to provide long service life with dependable quench speed control, as well as excellent and consistent part cleanliness. FENSO 150 is a high speed cold quench oil that is recommended for carbon and alloy steels, where uniform hardness, good part cleanliness and dimensional stability are required.

Quenching normally refers to the controlled cooling of manufactured steel parts in a fluid to achieve desired metallurgical properties. A steel is quenched to increase it's hardness, strength and wear resistance. The process consists of heating and holding the steel at temperatures above 1200°C to disperse the carbon and alloying elements throughout the iron mass. At this temperature, the steel has an austenitic structure. If the steel is allowed to cool slowly, as in annealing, the structure is transformed to pearlite, a soft ductile mechanical mixture of ferrite and cementite. If the steel is cooled more rapidly, a harder martensitic structure is formed which consists of a solid solution of iron carbide in iron.

Maximum hardness can be imparted to all common tool and machinery steels by cooling them in a controlled and rapid manner from their initial annealing temperature (> 900°C). The hardness that is achieved varies directly with the carbon content and the quenching speed. The steel alloy content has no appreciable effect on the maximum attainable hardness, but higher alloy steels allow for the attainment of maximum hardness at slower cooling rates. The rate of cooling that just causes the steel to harden fully to martensite is known as the "critical cooling rate". A cooling rate slower than this will produce a mixture of martensite and other intermediate transformation products which lower the quality of the quenched steel.

- Based on IVF Quench test time to 500°C

Features and Benefits

Fenso 90 and 150 are made from premium, solvent refined paraffinic basestocks which have high flash points and low volatility characteristics. FENSO 90 and 150 quench oils are fortified with an additive package that provides the rapid quench properties required, while helping to protect the metal parts from the formation of deposits during processing. The oils are non-corrosive to steel parts and can be readily cleaned by spray washing with mild alkali or water.

Features	Advantages and Potential Benefits
Rapid and controlled quench rates	Provides part hardness consistency, thereby reducing waste associated with off-spec parts
Good oxidation stability	Longer oil life at elevated system temperatures, with fewer oil changes and maintenance outages
Good water separating characteristics	More consistent and controlled quench speeds

Applications

FENSO 90 is recommended for use with carbon and alloy steels, including hard to quench aluminum killed steels (steel deoxidized with aluminum).

FENSO 150 is recommended for carbon and alloy steels where uniform hardness is required, as well as good parts cleanliness and dimensional stability.

Properties and Specifications

Property	FENSO 90	FENSO 150
ASTM Color, ASTM D1500	<1.5	2
Cooling Curve Analysis, Maxium Cooling Rate, °C/s, PQP 3.32	90.0 (637)	95.5 (634)
Cooling Curve Analysis, Time to 500 C, s, PQP 3.32	8.6	9
Flash Point, Cleveland Open Cup, °C, ASTM D92	200	205
Kinematic Viscosity @ 40 C, mm2/s, ASTM D445	38	25.1

Health and Safety

Health and Safety recommendations for this product can be found on the Material Safety Data Sheet (MSDS) @ http://www.msds.exxonmobil.com/psims/psims.aspx

All trademarks used herein are trademarks or registered trademarks of Exxon Mobil Corporation or one of its subsidiaries unless indicated otherwise.

11-2019

Imperial Oil

Petroleum and Chemicals Division
Lubricants and Specialties
240 Fourth Ave SW
C. P. 2480, Station M
Calgary AB T2P 3 M 9

1-800-268-3183

Typical Properties are typical of those obtained with normal production tolerance and do not constitute a specification. Variations that do not affect product performance are to be expected during normal manufacture and at different blending locations. The information contained herein is subject to change without notice. All products may not be available locally. For more information, contact your local ExxonMobil contact or visit www.exxonmobil.com
ExxonMobil is comprised of numerous affiliates and subsidiaries, many with names that include Esso, Mobil, or ExxonMobil. Nothing in this document is intended to override or supersede the corporate separateness of local entities. Responsibility for local action and accountability remains with the local ExxonMobil-affiliate entities.

ExxonMobil

Exxon Mobil Esso XTO

© Copyright 2003-2024 Exxon Mobil Corporation. All Rights Reserved