



Pentagon Lubricants (I) Private Limited



*Recipient of 'Model 5s Company'
By ABK-AOTS DOSAKAI, Japan.
1st Company in India to be conferred in SSI category.*

Issue 2

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an initiative
of
pentagon lubricants (I)
private limited,
chennai,
india.

for the benefit of
its esteemed customers

to know more about us
please visit
www.pentagonlubricants.com

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CUSTOMER EDUCATION PROGRAM

Customer Education Program, monthly mailer of Pentagon Lubricants (I) Private Limited
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Beyond Creating
Great Products,
We Are Here To
Create More
Educated
Customers!

foreword
by
s.alex wilfred
managing director

Dear All,

Greetings !

The response to our 1st issue of Customer Education Program (CEP) – Feb-2013 - is quite encouraging and many of you have taken your valuable time to congratulate us on this new initiative and some of you have wrote to say how the contents were found useful.

As you may already be aware, at Pentagon through Customer Education Program (CEP), we aim to increase customer awareness on our products and services and share articles and write-ups on proper handling, storage, maintenance practice, troubleshooting, etc.

With your valuable support, I am pleased to send herewith our 2nd issue – Apr-2013 and I am sure you will find the contents worth the reading.

If you wish your friend or colleague in Purchase/Commercial/Production/Quality/Maintenance department to be benefitted by our CEP please send us their contact details to us.

Cheers !

S. Alex Wilfred

Topics Covered In the Current Issue:-

Properties of Lubricants,
SAE Numbers, Ratings for Lubricating Oil, Engine Oil, Gear Oil,
Multi-grade Oil, its advantages
Codes Used on the Oil Packets

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Properties of Lubricants:

Listed below are the broad properties of Lubricants :-

Viscosity - It is defined as a resistance to flow of liquid to the adjacent layer. It is specified as a time in seconds that it takes for oil for a given amount of oil to flow by gravity through a standard sized orifice at a given temperature. Heavy oil has high viscosity and light oil has low viscosity.

Flash Point - It is the lowest temperature at which a vapour above the lubricant will ignite momentarily on application of a flame under specified conditions. This is possible due to the low volatilization of oil particles. So the flash point of the oil should be sufficiently high to avoid the fires of lubricants.

Fire Point - It is the lowest temperature at which an oil or other product vaporizes sufficiently rapidly to form above its surface an air-vapor mixture which when subjected to a source of ignition or a flame, will ignite and continue to burn. Typically for most Petroleum products the Fire Point is about 50°F above the Flash Point. The fire point should also be high in order to avoid the fire during servicing.

Cloud Point - It is defined as the temperature point where the liquid changes its form to solid particles. If the liquid lubricant becomes solid it loses its viscosity and cannot give the servicing as lubricants.

Pour Point - It is defined as the lowest temperature at which a liquid petroleum product will flow when it cooled under the conditions of the standard test method. Pour point gives the ability of lubricants to move at low temperature.

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Corrosion - It is defined as a deformation of solid particles on metallic parts which starts unintentionally from its outer surface.

Demulsibility - It is defined as the property of lubricants to remain separate from the water.

Adhesiveness - It is defined as the property of lubricant to stick on the metal parts.

Cleanliness - Lubricating oil must have an ability to clean the internal engine parts along with lubrication. It should easily clean away any dust or dirt which may have been present on the mating parts of an engine.

Film Strength - It is defined as the property of oil to form the thin surface between the two surfaces at low as well as high speed.

Dropping Point - It is defined as the temperature at which the first drop of liquid separates when the grease is heated under prescribed conditions.

Physical Stability - Lubricating oil must remain stable at low as well as high temperature. At low temperature, it should not become solid and at high temperature it should not vaporize.

Chemical Stability - Lubricating oil should be chemically stable. At high temperature, it should not deform in carbon particles otherwise, these carbon particles makes spark plug in faulty function.

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SAE Number for Lubricating Oil

The Society of Automotive Engineers (SAE) has defined a numerical code system for giving grade to the lubricating oil according to their viscosity characteristics. SAE viscosity grading includes the following:- From low to high viscosity: 0, 5, 10, 15, 20, 25, 30, 40 or 50. The numbers 0, 5, 10, 15 and 25 are suffixed with the letter W used for "winter" or cold-start viscosity, at lower temperature. SAE oil is either described as mono-grade oil or multi-grade oil depending upon the behavior of oil viscosity with temperature changes.

SAE Rating of Gear Oil

The table below illustrates Typical values of SAE rating for the Gear Oil :-

Property	VALUE (SAE 75W-90)
Kinematic Viscosity@100°C	16 cst
Viscosity Index	130
Flash Point	210 ^o C
Pour Point	-46 ^o C

SAE Rating of Engine Oil

The table below illustrates the typical values of SAE rating for the Engine Oil :-

PROPERTY	VALUE	VALUE
	SAE 5W-20	SAE 5W-30
Density	815 kg/m ³	859
Kinematic Viscosity @ 100 °C	8.7cst (centistokes)	11.0
Viscosity Index	163	174
Flash Point	214°C	230
Pour Point	-42 °C	-36°C
Total Base Number(mg KOH/gm oil)	7.5	7.5
Colour	2	2

What is Multi Grade Oil and what are its advantages?

Multi-grade is a term used to describe the oil for which the viscosity/temperature characteristics are such that its low temperature and high temperature viscosities fall within the limits of two different SAE numbers - SAE Standard J300. The Multi Grade Oil offers the following advantages :-

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- No necessity of changing the oil as per the temperature.
- It has excellent thermal and oxidation stabilities.
- It protects Engine parts from dust, corrosion and wear.
- It prolongs the mileage between decarburization.
- It reduces the oil consumption at high as well as low temperature.
- It increases the engine life by protecting it from corrosion.

Listed below are Codes (letters) used on the Oil Packets:-

Letter designation	Description
S (followed by other number)	Oil is suitable for only gasoline engine.
C (followed by other number)	Oil is suitable for only diesel engine.
SA	Straight mineral oil.
SB	Straight mineral oil +anti oxidant +anti scuff properties.
SC, SD, SE, SF, SG	Meets automobile manufacturer warranty requirements.
CD	Means oil is suitable for natural aspirated, turbocharged and super charged engine.
CE	Oil is suitable for heavy duty turbocharged and supercharged engine.
CF	Oil is useful for high speed four stroke engine.
2T	Particular used for 2 stroke engine.
4T	Particular used for 4 stroke engine.
Energy Conserving	Oil gives 1.5 % better fuel economy.
Energy Conserving- 2	Oil gives 2.7 % better fuel economy.
Single Grade Oil	Intended for warm climate or when engine block heaters are always used.
Multi Grade Oil-W	It indicates that oil performs well in winter condition. Lower the first number of W the better its ability to flow in cold weather.

