

1) BASE OIL Product

Description: Base Oil:

Base Oil is the name given to lubrication grade **oils** initially produced from refining crude **oil** (mineral **base oil**) or through chemical synthesis (synthetic **base oil**). **Base oil** is typically defined as **oil** with a boiling point range between 550 and 1050 F, consisting of hydrocarbons with 18 to 40 carbon atoms.

Packing: Drum, Flexi & Bulk

Group I

Group I base oils are classified as less than 90 percent saturates, greater than 0.03 percent sulfur and with a viscosity index of 80 to 120. The temperature range for these oils is from 32 to 150 degrees F. Group I base oils are solvent-refined, which is a simpler refining process.

SN60: is a low viscosity specialty **base oil** for Group I, with a good solvency and low temperature properties. Recommended for the formulation of industrial and metal working fluids.

Technical Specification SN60

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	L 0.5
3	Density @15.6 °C g/cc	ASTM D-4052	0.8751
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	7.92
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	2.19
6	Pour Point, °C	ASTM D-97	-20
7	Flash Point °C (coc), °C	ASTM D-92	149
8	Viscosity Index	ASTM D-2270	71
9	Neutralisation Value mgKOH / gm	ASTM D-974	Nil
10	Water Content (PPM)	ASTM D-1533	24
11	Foaming Charactrstics, nl at 24°C	ASTM D-892	10-0

SN70: is a low viscosity specialty **base oil** for Group I, with a good solvency and low temperature properties. Recommended for the formulation of industrial and metal working fluids.

Technical Specification SN70

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	1
3	Density @29.5 °C g/cc	ASTM D-1298	0.83
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	14
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	NR
6	Pour Point, °C	ASTM D-97	-12
7	Flash Point °C (coc), °C	ASTM D-92	200
8	Viscosity Index	ASTM D-2270	115
9	Neutralisation Value mgKOH / gm	ASTM D-974	Nil
10	Water Content (PPM)	ASTM D-1533	24
11	Foaming Characteristics, nl at 24°C	ASTM D-892	10-0

SN100: is a low viscosity specialty **base oil** for Group I, with a good solvency and low temperature properties. Recommended for the formulation of industrial and metal working fluids.

Technical Specification SN100

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	<1.5
3	Density @15 °C g/cc	ASTM D-1298	0.87
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	>20.5
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	4.2
6	Pour Point, °C	ASTM D-97	-12
7	Flash Point °C (coc), °C	ASTM D-92	>185
8	Viscosity Index	ASTM D-2270	>95
9	Aniline point °C	ASTM D-611	92
10	Sulphur %w	ASTM D-4294	0.9
11	Freezing point °C	ASTM D-97	-9 max

SN150: is a low viscosity specialty **base oil** for Group I, with a good solvency and low temperature properties. Recommended for the formulation of industrial and metal working fluids.

Technical Specification SN150

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	<1.5
3	Density @15 °C g/cc	ASTM D-1298	0.875
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	32
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	5.2
6	Pour Point, °C	ASTM D-97	-12
7	Flash Point °C (coc), °C	ASTM D-92	>200
8	Viscosity Index	ASTM D-2270	>98
9	Aniline point °C	ASTM D-611	94
10	Sulphur %w	ASTM D-4294	0.9
11	Freezing point °C	ASTM D-97	-9 max

SN300: is a low viscosity specialty **base oil** for Group I, with a good solvency and low temperature properties. Recommended for the formulation of industrial and metal working fluids.

Technical Specification SN300

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	<2.5
3	Density @15 °C g/cc	ASTM D-1298	0.89
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	62
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	8.2
6	Pour Point, °C	ASTM D-97	-12
7	Flash Point °C (coc), °C	ASTM D-92	>225
8	Viscosity Index	ASTM D-2270	>95
9	Aniline point °C	ASTM D-611	96
10	Sulphur %w	ASTM D-4294	1.0
11	Freezing point °C	ASTM D-97	-9 max

SN500: is a low viscosity specialty **base oil** for Group I, with a good solvency and low temperature properties. Recommended for the formulation of industrial and metal working fluids.

Technical Specification SN500

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	<3.0
3	Density @15 °C g/cc	ASTM D-1298	0.885
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	98
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	11.0
6	Pour Point, °C	ASTM D-97	-12
7	Flash Point °C (coc), °C	ASTM D-92	>230
8	Viscosity Index	ASTM D-2270	>95
9	Aniline point °C	ASTM D-611	103
10	Sulphur %w	ASTM D-4294	0.4
11	Freezing point °C	ASTM D-97	-9 max

SN650: is a low viscosity specialty **base oil** for Group I, with a good solvency and low temperature properties. Recommended for the formulation of industrial and metal working fluids.

Technical Specification SN650

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	3.5
3	Density @15 °C g/cc	ASTM D-1298	0.894
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	155
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	16.0
6	Pour Point, °C	ASTM D-97	0
7	Flash Point °C (coc), °C	ASTM D-92	270
8	Viscosity Index	ASTM D-2270	100
9	Aniline point °C	ASTM D-611	103
10	Sulphur %w	ASTM D-4294	0.4
11	Freezing point °C	ASTM D-97	-9 max

SN900: is a low viscosity specialty **base oil** for Group I, with a good solvency and low temperature properties. Recommended for the formulation of industrial and metal working fluids.

Technical Specification SN900

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	4.0
3	Density @15 °C g/cc	ASTM D-1298	0.896
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	90
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	23.5
6	Pour Point, °C	ASTM D-97	-15
7	Flash Point °C (coc), °C	ASTM D-92	255
8	Viscosity Index	ASTM D-2270	90
9	Aniline point °C	ASTM D-611	103
10	Ash, %	ASTM D-4294	0.005
11	Freezing point °C	ASTM D-97	-9 max

Bright Stock 150: is a low viscosity specialty **base oil** for Group I, with a good solvency and low temperature properties. Recommended for the formulation of industrial and metal working fluids.

Technical Specification Bright Stock 150

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	2.0
3	Density @15.6 °C g/cc	ASTM D-1298	0.902
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	511
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	30
6	Pour Point, °C	ASTM D-97	-6 max
7	Flash Point °C (coc), °C	ASTM D-92	252
8	Viscosity Index	ASTM D-2270	90
9	Aniline point °C	ASTM D-611	103
10	Sulphur %w	ASTM D-4294	0.64
11	Freezing point °C	ASTM D-97	-9 max

Group II

Group II base oils are defined as being more than 90 percent saturates, less than 0.03 percent sulfur and with a viscosity index of 80 to 120. They are often manufactured by hydrocracking, which is a more complex process than what is used for Group I base oils. Since all the hydrocarbon molecules of these oils are saturated,

Group II base oils have better antioxidation properties. They also have a clearer color and cost more in comparison to Group I base oils. Still, Group II base oils are becoming very common on the market today and are priced very close to Group I oils.

70N: is a high purity, low viscosity paraffinic oil produced from a high-pressure hydrocracking and hydro-dewaxing process that removes virtually all metals, Sulfur, and nitrogen from the feedstock. 70N is used for a wide variety of uses, including use as a process oil, ATF formulations, agricultural applications, and other lubricant formulations.

Technical Specification 70N

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	<0.5
3	Density @15.6 °C g/cc	ASTM D-4052	35.1
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	12.2
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	3.03
6	Pour Point, °C	ASTM D-97	-30
7	Flash Point °C (coc), °C	ASTM D-92	191
8	Viscosity Index	ASTM D-2270	92
9	% Volatility	ASTM D-7213	3.5
10	Cold Crank Simulator Cp @ -30 °C	ASTM D-5293	1000
11	Composition % Saturates	UV Correl	>99.0

100N: is a high purity, low viscosity paraffinic oil produced from a high-pressure hydrocracking and hydro-dewaxing process that removes virtually all metals, Sulfur, and nitrogen from the feedstock. **100N** is used for a wide variety of uses, including use as a process oil, ATF formulations, agricultural applications, and other lubricant formulations.

Technical Specification 100N

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	<0.5
3	Density @15.6 °C g/cc	ASTM D-4052	7.5
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	20.2
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	3.58
6	Pour Point, °C	ASTM D-97	-30
7	Flash Point °C (coc), °C	ASTM D-92	345
8	Viscosity Index	ASTM D-2270	109
9	Sulfur wt%	ASTM D-5453	>0.003
10	Aromatics wt%	ASTM D-5293	0.3
11	Saturates wt%	ASTM D-7419	>99.0

150N: is a high purity, low viscosity paraffinic oil produced from a high-pressure hydrocracking and hydro-dewaxing process that removes virtually all metals, Sulfur, and nitrogen from the feedstock.

150N is used for a wide variety of uses, including use as a process oil, ATF formulations, agricultural applications, and other lubricant formulations.

Technical Specification 150N

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	<0.5
3	Density @15.6 °C g/cc	ASTM D-4052	7.5
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	29.10
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	5.27
6	Pour Point, °C	ASTM D-97	-17
7	Flash Point °C (coc), °C	ASTM D-92	226
8	Viscosity Index	ASTM D-2270	113
9	Sulfur wt%	ASTM D-5453	1.0
10	Aromatics wt%	ASTM D-5293	0.0
11	TAN	-	0.004

300N: is a high purity, low viscosity paraffinic oil produced from a high-pressure hydrocracking and hydro-dewaxing process that removes virtually all metals, Sulfur, and nitrogen from the feedstock.

300N is used for a wide variety of uses, including use as a process oil, ATF formulations, agricultural applications, and other lubricant formulations.

Technical Specification 300N

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	1.5
3	Density @15.6 °C g/cc	ASTM D-4052	870
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	75.0
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	8.5
6	Pour Point, °C	ASTM D-97	-12
7	Flash Point °C (coc), °C	ASTM D-92	245
8	Viscosity Index	ASTM D-2270	105
9	Sulfur wt%	ASTM D-5453	>0.01
10	Volatility Noack 1h/250 °C		5.0
11	TAN	-	0.01

400N: is a high purity, low viscosity paraffinic oil produced from a high-pressure hydrocracking and hydro-dewaxing process that removes virtually all metals, Sulfur, and nitrogen from the feedstock.

400N is used for a wide variety of uses, including use as a process oil, ATF formulations, agricultural applications, and other lubricant formulations.

Technical Specification 400N

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	<0.5
3	Density @15.6 °C g/cc	ASTM D-4052	0.8662
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	68.21
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	9.1
6	Pour Point, °C	ASTM D-97	-24
7	Flash Point °C (coc), °C	ASTM D-92	230
8	Viscosity Index	ASTM D-2270	108
9	Sulfur wt%	ASTM D-5453	0.000014
10	Aromatics wt%	ASTM D-5293	0.2
11	Saturates wt%	ASTM D-7419	99.70

500N: is a high purity, low viscosity paraffinic oil produced from a high-pressure hydrocracking and hydro-dewaxing process that removes virtually all metals, Sulfur, and nitrogen from the feedstock.

500N is used for a wide variety of uses, including use as a process oil, ATF formulations, agricultural applications, and other lubricant formulations.

Technical Specification 500N

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	<0.5
3	Density @15.6 °C g/cc	ASTM D-4052	0.8671
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	93.9
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	11.1
6	Pour Point, °C	ASTM D-97	-21
7	Flash Point °C (coc), °C	ASTM D-92	276
8	Viscosity Index	ASTM D-2270	103
9	Sulfur wt%	ASTM D-5453	0.0002
10	Aromatics wt%	ASTM D-5293	0.3
11	Saturates wt%	ASTM D-7419	99.70

600N: is a high purity, low viscosity paraffinic oil produced from a high-pressure hydrocracking and hydro-dewaxing process that removes virtually all metals, Sulfur, and nitrogen from the feedstock.

600N is used for a wide variety of uses, including use as a process oil, ATF formulations, agricultural applications, and other lubricant formulations.

Technical Specification 600N

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	<0.5
3	Density @15.6 °C g/cc	ASTM D-4052	0.8671
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	107.00
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	12.03
6	Pour Point, °C	ASTM D-97	-18
7	Flash Point °C (coc), °C	ASTM D-92	276
8	Viscosity Index	ASTM D-2270	102
9	Sulfur wt%	ASTM D-5453	4
10	Aromatics wt%	ASTM D-5293	0.0
11	TAN	-	0.004

Group III

Group III base oils are greater than 90 percent saturates, less than 0.03 percent sulfur and have a viscosity index above 120. These oils are refined even more than Group II base oils and generally are severely hydrocracked (higher pressure and heat).

4 cSt: is a high-performance Group III base oil with good oxidation stability, low sulphur content, high viscosity index and excellent low temperature fluidity. This line of products is widely used as blending components in a variety of industrial and automotive lubricants, functional fluids and can also be used as a VI improver for low viscosity index base oils.

Technical Specification 4 cSt

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	<0.5
3	Density @15.6 °C g/cc	ASTM D-4052	827
4	K. Viscosity @ 50 °C, cSt	ASTM D-445	14.12
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	4.3
6	Pour Point, °C	ASTM D-97	-18
7	Flash Point °C (coc), °C	ASTM D-92	230
8	Viscosity Index	ASTM D-2270	130
9	Sulfur wt%	ASTM D-4294	L17
10	Aromatics wt%	ASTM D-5293	0.3
11	NOACK wt%	ASTM D-5800	13

6 cSt: is a high-performance Group III base oil with good oxidation stability, low sulphur content, high viscosity index and excellent low temperature fluidity. This line of products is widely used as blending components in a variety of industrial and automotive lubricants, functional fluids and can also be used as a VI improver for low viscosity index base oils.

Technical Specification 6 cSt

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	<0.5
3	Density @15.6 °C g/cc	ASTM D-4052	844
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	34
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	6.18
6	Pour Point, °C	ASTM D-97	-15
7	Flash Point °C (coc), °C	ASTM D-92	220
8	Viscosity Index	ASTM D-2270	137
9	Sulfur wt%	ASTM D-4294	<0.03
10	Saturates wt%	ASTM D-2007	99.8%
11	NOACK wt%	ASTM D-5800	6.80

8 cSt:
is a

high-performance Group III base oil with good oxidation stability, low sulphur content, high viscosity index and excellent low temperature fluidity. This line of products is widely used as blending components in a variety of industrial and automotive lubricants, functional fluids and can also be used as a VI improver for low viscosity index base oils.

Technical Specification 8 cSt

SR NO.	CHARACTERISTICS	TEST METHOD	TEST VALUES
1	Appearance	Visual	Clear & Bright
2	Colour	ASTM D-1500	<0.5
3	Density @15.6 °C g/cc	ASTM D-4052	845
4	K. Viscosity @ 40 °C, cSt	ASTM D-445	49
5	K. Viscosity @ 100 °C, cSt	ASTM D-445	8.05
6	Pour Point, °C	ASTM D-97	-12
7	Flash Point °C (coc), °C	ASTM D-92	255
8	Viscosity Index	ASTM D-2270	137
9	Sulfur wt%	ASTM D-4294	<0.03
10	Saturates wt%	ASTM D-2007	99.8%
11	NOACK wt%	ASTM D-5800	3.50

Group IV

Group IV base oils are [polyalphaolefins \(PAOs\)](#). These synthetic base oils are made through a process called synthesizing. They have a much broader temperature range and are great for use in extreme cold conditions and high heat applications.

Group V

Group V base oils are classified as all other base oils, including silicone, [phosphate ester](#), [polyalkylene glycol \(PAG\)](#), polyolester, [biolubes](#), etc. These base oils are at times mixed with other base stocks to enhance the oil's properties. An example would be a PAO-based compressor oil that is mixed with a polyolester.

Esters are common Group V base oils used in different lubricant formulations to improve the properties of the existing base oil. Ester oils can take more abuse at higher temperatures and will provide superior detergency compared to a PAO synthetic base oil, which in turn increases the hours of use.

API BASE OIL CATEGORIES				
	Base Oil Category	Sulfur (%)	Saturates (%)	Viscosity Index
Mineral	Group I (solvent refined)	>0.03	and/or <90	80 to 120
	Group II (hydrotreated)	<0.03	and >90	80 to 120
	Group III (hydrocracked)	<0.03	and >90	>120
Synthetic	Group IV	PAO Synthetic Lubricants		
	Group V	All other base oils not included in Groups I, II, III or IV		