

LUBRICATING OIL FORMULATIONS ENCYCLOPEDIA

**FULL SYNTHETIC**

**0W 40**

**ENGINE OILS**

**FORMULATIONS**

**E – TEXTBOOKS**

SOLVERCHEM PUBLICATIONS

**LUBRICATING OILS FORMULATIONS ENCYCLOPEDIA**



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# **INDEX**

**0W - 40**

**FULL SYNTHETIC**

**ENGINE OILS**

**FORMULATIONS AND PRODUCTION PROCESSES**

- 1 – **0W - 40 API CF – 4 / CF / SJ** FULL SYNTHETIC ENGINE OIL  
FORMULATION AND MANUFACTURING PROCESS – 1
- 2 – **0W - 40 API CF – 4 / CF / SJ** FULL SYNTHETIC ENGINE OIL  
FORMULATION AND MANUFACTURING PROCESS – 2
- 3 – **0W - 40 API CF – 4 / CF / SJ** FULL SYNTHETIC ENGINE OIL  
FORMULATION AND MANUFACTURING PROCESS – 3
- 4 – **0W - 40 API CG – 4 / SL** FULL SYNTHETIC ENGINE OIL  
FORMULATION AND MANUFACTURING PROCESS – 1
- 5 – **0W - 40 API CG – 4 / SL** FULL SYNTHETIC ENGINE OIL  
FORMULATION AND MANUFACTURING PROCESS – 2
- 6 – **0W - 40 API CG – 4 / SL** FULL SYNTHETIC ENGINE OIL  
FORMULATION AND MANUFACTURING PROCESS – 3
- 7 – **0W - 40 API SL / CF** FULL SYNTHETIC ENGINE OIL  
FORMULATION AND MANUFACTURING PROCESS – 1
- 8 – **0W - 40 API SL / CF** FULL SYNTHETIC ENGINE OIL  
FORMULATION AND MANUFACTURING PROCESS – 2
- 9 – **0W - 40 API SL / CF** FULL SYNTHETIC ENGINE OIL  
FORMULATION AND MANUFACTURING PROCESS – 3

LUBRICATING OIL FORMULATIONS ENCYCLOPEDIA

**FULL SYNTHETIC**

**0W - 40**

**ENGINE OILS**

**PRODUCTIONS**

SOLVERCHEM PUBLICATIONS

**0W – 40 API CF – 4 / CF / SJ  
FULL SYNTHETIC ENGINE OIL  
PRODUCTION PROCESS – I**

NO	INGREDIENTS	W/W
1	ENGINE OIL PERFORMANCE ADDITIVE PACKAGE	7.20
2	VISCOSITY INDEX IMPROVER ( FORMULA 1 )	6
3	ANTIFOAM AGENT	0.10
4	POUR POINT DEPRESSANT ( PPD )	0.20
5	BASE OIL ( PAO – 4 )	46.50
6	BASE OIL ( PAO - 6 )	25
7	BASE OIL ( ESTEREX A51 )	15
	<b>TOTAL</b>	<b>100</b>

**PROCESS:** Charge **base oils** in the process tank. Start to mix at constant 60 – 70 revolutions per minute ( rpm ) and heat until 60 – 80 C. Add **viscosity index improver** during stirring. Add **pour point depressant** and **antifoam agent** during constant mixing and temperature then mix well. Add **performance additive** then mix. Continue stirring for about 2 hours. Then, take three samples from above, middle and bottom and check values. Homogenous and values is enough, process is completed.

**NOTE:** In the above manufacturing process, viscosity can be adjusted with **base oils** and **viscosity index improver** amounts.

**NOTE:** Rpm and temperature in this production is important. It must remain constant throughout the production.

**NOTE:** Standards of engine oils is adjustable according to some countries.

**0W – 40 API CF – 4 / CF / SJ  
FULL SYNTHETIC ENGINE OIL  
PRODUCTION PROCESS – 2**

NO	INGREDIENTS	W/W
1	ENGINE OIL PERFORMANCE ADDITIVE PACKAGE	7.70
2	VISCOSITY INDEX IMPROVER ( FORMULA 1 )	6.5
3	ANTIFOAM AGENT	0.10
4	POUR POINT DEPRESSANT ( PPD )	0.20
5	BASE OIL ( PAO – 4 )	55.5
6	BASE OIL ( PAO - 6 )	30
	<b>TOTAL</b>	<b>100</b>

**PROCESS:** Charge **base oils** in the process tank. Start to mix at constant 60 – 70 revolutions per minute ( rpm ) and heat until 60 – 80 C. Add **viscosity index improver** during stirring. Add **pour point depressant** and **antifoam agent** during constant mixing and temperature then mix well. Add **performance additive** then mix. Continue stirring for about 2 hours. Then, take three samples from above, middle and bottom and check values. Homogenous and values is enough, process is completed.

**NOTE:** In the above manufacturing process, viscosity can be adjusted with **base oils** and **viscosity index improver** amounts.

**NOTE:** Rpm and temperature in this production is important. It must remain constant throughout the production.

**NOTE:** Standards of engine oils is adjustable according to some countries.

**OW – 40 API CF – 4 / CF / SJ  
FULL SYNTHETIC ENGINE OIL  
PRODUCTION PROCESS – 3**

NO	INGREDIENTS	W/W
1	ENGINE OIL PERFORMANCE ADDITIVE PACKAGE	7.70
2	VISCOSITY INDEX IMPROVER ( FORMULA 1 )	7
3	ANTIFOAM AGENT	0.10
4	POUR POINT DEPRESSANT ( PPD )	0.20
5	BASE OIL ( PAO – 4 )	85
	<b>TOTAL</b>	<b>100</b>

**PROCESS:** Charge **base oils** in the process tank. Start to mix at constant 60 – 70 revolutions per minute ( rpm ) and heat until 60 – 80 C. Add **viscosity index improver** during stirring. Add **pour point depressant** and **antifoam agent** during constant mixing and temperature then mix well. Add **performance additive** then mix. Continue stirring for about 2 hours. Then, take three samples from above, middle and bottom and check values. Homogenous and values is enough, process is completed.

**NOTE:** In the above manufacturing process, viscosity can be adjusted with **base oils** and **viscosity index improver** amounts.

**NOTE:** Rpm and temperature in this production is important. It must remain constant throughout the production.

**NOTE:** Standards of engine oils is adjustable according to some countries.



**0W – 40 API CG – 4 / SL  
FULL SYNTHETIC ENGINE OIL  
PRODUCTION PROCESS – I**

NO	INGREDIENTS	W/W
1	ENGINE OIL PERFORMANCE ADDITIVE PACKAGE	9.5
2	VISCOSITY INDEX IMPROVER ( FORMULA 1 )	6
3	ANTIFOAM AGENT	0.10
4	POUR POINT DEPRESSANT ( PPD )	0.20
5	BASE OIL ( PAO – 6 )	84.20
	<b>TOTAL</b>	<b>100</b>

**PROCESS:** Charge **base oils** in the process tank. Start to mix at constant 60 – 70 revolutions per minute ( rpm ) and heat until 60 – 80 C. Add **viscosity index improver** during stirring. Add **pour point depressant** and **antifoam agent** during constant mixing and temperature then mix well. Add **performance additive** then mix. Continue stirring for about 2 hours. Then, take three samples from above, middle and bottom and check values. Homogenous and values is enough, process is completed.

**NOTE:** In the above manufacturing process, viscosity can be adjusted with **base oils** and **viscosity index improver** amounts.

**NOTE:** Rpm and temperature in this production is important. It must remain constant throughout the production.

**NOTE:** Standards of engine oils is adjustable according to some countries.

**0W – 40 API CG – 4 / SL  
FULL SYNTHETIC ENGINE OIL  
PRODUCTION PROCESS – 2**

NO	INGREDIENTS	W/W
1	ENGINE OIL PERFORMANCE ADDITIVE PACKAGE	9
2	VISCOSITY INDEX IMPROVER ( FORMULA 1 )	7
3	ANTIFOAM AGENT	0.10
4	POUR POINT DEPRESSANT ( PPD )	0.20
5	BASE OIL ( PAO – 4 )	83.70
	<b>TOTAL</b>	<b>100</b>

**PROCESS:** Charge **base oils** in the process tank. Start to mix at constant 60 – 70 revolutions per minute ( rpm ) and heat until 60 – 80 C. Add **viscosity index improver** during stirring. Add **pour point depressant** and **antifoam agent** during constant mixing and temperature then mix well. Add **performance additive** then mix. Continue stirring for about 2 hours. Then, take three samples from above, middle and bottom and check values. Homogenous and values is enough, process is completed.

**NOTE:** In the above manufacturing process, viscosity can be adjusted with **base oils** and **viscosity index improver** amounts.

**NOTE:** Rpm and temperature in this production is important. It must remain constant throughout the production.

**NOTE:** Standards of engine oils is adjustable according to some countries.

**0W – 40 API CG – 4 / SL  
FULL SYNTHETIC ENGINE OIL  
PRODUCTION PROCESS – 3**

NO	INGREDIENTS	W/W
1	ENGINE OIL PERFORMANCE ADDITIVE PACKAGE	9.70
2	VISCOSITY INDEX IMPROVER ( FORMULA 1 )	7.5
3	ANTIFOAM AGENT	0.10
4	POUR POINT DEPRESSANT ( PPD )	0.20
5	BASE OIL ( PAO – 4 )	82.5
	<b>TOTAL</b>	<b>100</b>

**PROCESS:** Charge **base oils** in the process tank. Start to mix at constant 60 – 70 revolutions per minute ( rpm ) and heat until 60 – 80 C. Add **viscosity index improver** during stirring. Add **pour point depressant** and **antifoam agent** during constant mixing and temperature then mix well. Add **performance additive** then mix. Continue stirring for about 2 hours. Then, take three samples from above, middle and bottom and check values. Homogenous and values is enough, process is completed.

**NOTE:** In the above manufacturing process, viscosity can be adjusted with **base oils** and **viscosity index improver** amounts.

**NOTE:** Rpm and temperature in this production is important. It must remain constant throughout the production.

**NOTE:** Standards of engine oils is adjustable according to some countries.

**OW – 40 API SL / CF  
FULL SYNTHETIC ENGINE OIL  
PRODUCTION PROCESS – I**

NO	INGREDIENTS	W/W
1	ENGINE OIL PERFORMANCE ADDITIVE PACKAGE	7.7
2	VISCOSITY INDEX IMPROVER ( FORMULA 1 )	7
3	ANTIFOAM AGENT	0.10
4	POUR POINT DEPRESSANT ( PPD )	0.20
5	BASE OIL ( PAO – 4 )	65
6	BASE OIL ( PAO - 6 )	20
	<b>TOTAL</b>	<b>100</b>

**PROCESS:** Charge **base oils** in the process tank. Start to mix at constant 60 – 70 revolutions per minute ( rpm ) and heat until 60 – 80 C. Add **viscosity index improver** during stirring. Add **pour point depressant** and **antifoam agent** during constant mixing and temperature then mix well. Add **performance additive** then mix. Continue stirring for about 2 hours. Then, take three samples from above, middle and bottom and check values. Homogenous and values is enough, process is completed.

**NOTE:** In the above manufacturing process, viscosity can be adjusted with **base oils** and **viscosity index improver** amounts.

**NOTE:** Rpm and temperature in this production is important. It must remain constant throughout the production.

**NOTE:** Standards of engine oils is adjustable according to some countries.

**0W – 40 API SL / CF  
FULL SYNTHETIC ENGINE OIL  
PRODUCTION PROCESS – 2**

NO	INGREDIENTS	W/W
1	ENGINE OIL PERFORMANCE ADDITIVE PACKAGE	7.70
2	VISCOSITY INDEX IMPROVER ( FORMULA 1 )	7
3	ANTIFOAM AGENT	0.10
4	POUR POINT DEPRESSANT ( PPD )	0.20
5	BASE OIL ( PAO – 4 )	75
6	BASE OIL ( PAO - 6 )	10
	<b>TOTAL</b>	<b>100</b>

**PROCESS:** Charge **base oils** in the process tank. Start to mix at constant 60 – 70 revolutions per minute ( rpm ) and heat until 60 – 80 C. Add **viscosity index improver** during stirring. Add **pour point depressant** and **antifoam agent** during constant mixing and temperature then mix well. Add **performance additive** then mix. Continue stirring for about 2 hours. Then, take three samples from above, middle and bottom and check values. Homogenous and values is enough, process is completed.

**NOTE:** In the above manufacturing process, viscosity can be adjusted with **base oils** and **viscosity index improver** amounts.

**NOTE:** Rpm and temperature in this production is important. It must remain constant throughout the production.

**NOTE:** Standards of engine oils is adjustable according to some countries.

**OW – 40 API SL / CF  
FULL SYNTHETIC ENGINE OIL  
PRODUCTION PROCESS – 3**

NO	INGREDIENTS	W/W
1	ENGINE OIL PERFORMANCE ADDITIVE PACKAGE	7.70
2	VISCOSITY INDEX IMPROVER ( FORMULA 1 )	6
3	ANTIFOAM AGENT	0.10
4	POUR POINT DEPRESSANT ( PPD )	0.20
5	BASE OIL ( PAO – 6 )	87
	<b>TOTAL</b>	<b>100</b>

**PROCESS:** Charge **base oils** in the process tank. Start to mix at constant 60 – 70 revolutions per minute ( rpm ) and heat until 60 – 80 C. Add **viscosity index improver** during stirring. Add **pour point depressant** and **antifoam agent** during constant mixing and temperature then mix well. Add **performance additive** then mix. Continue stirring for about 2 hours. Then, take three samples from above, middle and bottom and check values. Homogenous and values is enough, process is completed.

**NOTE:** In the above manufacturing process, viscosity can be adjusted with **base oils** and **viscosity index improver** amounts.

**NOTE:** Rpm and temperature in this production is important. It must remain constant throughout the production.

**NOTE:** Standards of engine oils is adjustable according to some countries.