Shell MACRON® Oils

Premium tri-purpose cutting oils

Shell MACRON® cutting oils are transparent, light colored cutting oils formulated from high quality severely hydroprocessed base stocks with a naturally high viscosity index. Shell MACRON® 221CM and 222CM cutting oils are formulated with a conventional chlorinated extreme pressure additive, whereas the Shell MACRON® "M Series" of cutting oils utilize a combination of passive and inactive extreme pressure additives.

Performance Features and Benefits

- Excellent machining without zinc, phosphorus and heavy metals
- Excellent machining without chlorine (M series only)
- Good oxidation stability
- Corrosion/rust protection of parts and machines
- Helps give excellent finish on parts
- Helps reduce smoke and mist
- Reduced tool wear
- Helps prevent varnish and sludge formation
- Non-staining to yellow metals
- Tri-purpose oil that can be used as a hydraulic oil, machine lube, or cutting oil in machine tools such as automatic screw machines and NC/CNC machining centers.

Main Applications

- Turning, milling, reaming, drilling, and shaping of a wide variety of metals
- Broaching of some alloys of aluminum, copper and brass and magnesium
- Tapping and external threading of cast iron and some alloys of copper and magnesium
- Hobbing of high machinability carbon steels and some alloys of copper and magnesium
- Gundrilling of high machinability carbon steels and some alloys of copper and magnesium
- Automatic screw machines
- Grinding a wide variety of metals

Advice on applications not covered in this handbook may be obtained from your Shell representative.

Handling and Safety Information

For information on the safe handling, storage, or use of this product, refer to its Material Safety Data Sheet at http://www.epc.shell.com/. If you are a Shell Distributor, please call 1+800-332-6457 for all of your service needs. All other customers please call 1+800-237-8645 for all of your service needs.

Protect the Environment

Do not discharge into drains, soil, or water.

Typical Properties of Shell MACRON® Oils

	Test Method	221 CM-32	222 CM-58
Appearance		Light Pale	Light Pale
Odor		Mild	Mild
Gravity, °API	D 1298	31.2	29.1
Viscosity:			
@ 40 °C, cSt	D 445	31.0	58.2
@ 100 °C, cSt	D 445	5.73	8.16
@ 100 °F, SUS	D 88	159	307
@ 212 °F, SUS	D 88	45.4	53.3
Viscosity Index	D 2270	128	106
Flash Point, COC, °F	D 92	400	425
Pour Point, °F	D 97	5	10
Copper Strip Corrosion	D 130		
6 hours @ 160 °F		1a	1a
3 hours @ 212 °F		1b	1b
Four Ball EP	D 2783		
Load Wear Index, kgf		37	37
Weld Point, kgf		200	200
Chlorine		Present	Present

These characteristics are typical of current production. While future production will conform to Shell specifications, variation in these characteristics may occur.

Typical Properties of Shell MACRON® Oils (Chlorine free "M Series")

	Test Method	221 M-32	223 M-37
Appearance		Light Pale	Light Pale
Odor		Mild	Mild
Gravity, °API @ 60°F	D 1298	31.7	30.6
Viscosity:			
@ 40 °C, cSt	D 445	36.6	36.7
@ 100 °C, cSt	D 445	6.27	6.27
@ 100 °F, SUS	D 88	188	188
@ 210 °F, SUS	D 88	47.2	47.2
Viscosity Index	D 2270	121	120
Flash Point, COC, °F	D 92	395	395
Pour Point, °F	D 97	10	5
Copper Strip Corrosion	D 130		
6 hours @ 160 °F		1b	1b
3 hours @ 212 °F		1b	1b
Four Ball EP	D 2783		
Load Wear Index, kgf		36	52
Weld Point, kgf		250	400
Sulfur		Present	Present
Chlorine		None	None
Calcium		Present	Present

These characteristics are typical of current production. While future production will conform to Shell specifications, variation in these characteristics may occur.