



SHELL MACRON[®] OILS

Premium tri-purpose cutting oils

Product Description

Shell Macron[®] cutting oils are transparent, light colored cutting oils formulated from high quality severely hydroprocessed base stocks with a naturally high viscosity index. The **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. The EP properties of the **Shell Macron[®]** cutting oils allow faster machining rates, help extend tool life, and protect against staining of yellow metals. The **Shell Macron[®]** additive systems provide excellent performance in reacting at the chip-tool interface to reduce friction, but will not promote unfavorable reactions with internal components in hydraulic and lubrication systems.

These cutting oils are also extremely effective at providing rust and corrosion protection of parts, cutting tools, and the machine. All of these oils have excellent anti-wear properties to help minimize tool wear and reduce machine down time due to tool change-out. The **Shell Macron[®] “M series”** contains a special lubricity additive that will impart an excellent finish on the part without varnish or sludge formation in the machine tool or hydraulic system like those formed by many fatty oils or materials. All of these cutting oils have high flash points, which helps minimize the potential for fire.

All of the **Shell Macron[®]** products contain an extremely effective anti-mist additive which helps reduce the formation of mist around the machine. The unique combination of additives in the **Shell Macron[®]** series of cutting oils also imparts excellent cooling properties which make these products good choices in many of today's newer, hi-tech machines operating at greatly increased speed and feed rates. The excellent cooling properties of these oils can help to eliminate overheating (blueing) of parts and chips in some machining operations.

Shell Macron[®] oils are tripurpose because they can be used as the hydraulic oil, machine lube, and cutting oil in machine tools such as automatic screw machines and NC/CNC machining centers.

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

Features/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

Typical Properties of Shell Macron [®] Oils			
	Test Method		
		221CM-32	222CM-58
Product Code 55 gallon drum 5 gallon pail		6102500055 5059864	6102600055 -----
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
@ 210°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 6 hours @ 160°F 3 hours @ 212°F	D 130	1a 1b	1a 1b
Four Ball EP Load Wear Index, kgf Weld Point, kgf	D 2783	37 200	37 200
Chlorine		Present	Present

Typical Properties of Shell Macron [®] Oils (Chlorine free “M Series”)					
	Test				
	Method	221M-32	222M-70	223M-37	224M-70
Product Code 55 gallon drum 5 gallon pail		6102700055 -----	6102800055 -----	6102900055 -----	6103000055 -----
Appearance		Light Pale	Light Pale	Light Pale	Light Pale
Odor		Mild	Mild	Mild	Mild
Gravity, °API @ 60°F	D 1298	31.7	30.2	30.6	29.2
Flash Point, COC, °F	D 92	395	440	395	445
Pour Point, °F	D 97	10	10	5	10
Viscosity:					
@ 40°C, cSt	D 445	36.6	69.5	36.7	70.2
@ 100°C, cSt	D 445	6.27	8.60	6.27	9.30
@ 100°F, SUS	D 88	188	361	188	364
@ 210°F, SUS	D 88	47.2	55.2	47.2	62.6
Viscosity Index	D 2270	121	94	120	109
Copper Strip Corrosion 6 hours @ 160°F 3 hours @ 212°F	D 130	1b 1b	1b 1b	1b 1b	1b 1b
Four-all EP Load Wear Index, kgf Weld Point, kgf	D 2783	36 250	41 315	52 400	51 400
Sulfur		Present	Present	Present	Present
Chlorine		None	None	None	None
Calcium		Present	Present	Present	Present

Handling & Safety Information

For information on the safe handling and use of this product, refer to its Material Safety Data Sheet at <http://www.shell-lubricants.com/msds/>. If you are a Shell Distributor, please call **1+800-468-6457** for all of your service needs. All other customers, please call **1+800-840-5737** for all of your service needs. Information is also available on the World Wide Web: <http://www.shell-lubricants.com/>.