Shell FENELLA® Oils CH

Chlorine free compounded mineral oils for heading, stamping and drawing applications

Shell FENELLA® Oils CH are chlorine free, compounded mineral oils designed for use in a wide range of metal forming applications including heading, stamping, rolling, drawing, and extruding of aluminum, copper, ferrous and other non-ferrous metals. Shell FENELLA® Oils CH 401 and CH 402 possess excellent anti-wear, load carrying, lubricity, and adhesive properties to provide satisfactory lubrication in many metal deformation processes.

Performance Features and Benefits

- Unique anti-wear/extreme pressure-additive system provides extremely effective boundary lubricant films, which prevent metal-to-metal contact to protect the die and the part being formed
- Excellent lubricity and adhesive properties reduce frictional heat and provide smooth surface finish of parts
- Promotes die life (minimizes wear and metal pick-up)
- Good rust/corrosion protection properties
- No chlorine, zinc, phosphorus, or heavy metals
- Effective with ferrous and non-ferrous metals
- Low smoke/mist tendencies

Main Applications

- Shell FENELLA® Oil CH 402 exhibits a higher viscosity and greater adhesive properties, which make the product extremely suitable for multi-step metal deformation processes where maintaining the fluid on the part is necessary. Shell FENELLA® Oils CH 401 and CH 402 may be easily removed by conventional solvents and aqueous cleaning techniques.
- Shell FENELLA® Oils CH 401 and CH 402 may be used in place of highly chlorinated forming fluids without sacrificing performance. The absence of chlorine allows the products to be used in forming operations on metals and alloys of aluminum and titanium. These products do not contain active sulfur, which makes them suitable for use with copper and brass alloys.

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 Physical Characteristics

Shell FENELLA® Oils CH	Test Method	CH 401	CH 402
Appearance		Pale	Dark Pale
Gravity, °API	D 1298	22.0	21.1
Viscosity:			
@ 40 °C, cSt	D 445	78.3	154
@ 100 °C, cSt	D 445	10.7	17.45
@ 100 °F, SUS	D 88	403	799
@ 212 °F, SUS	D 88	62.7	89.9
Viscosity Index	D 2270	123	124
Flash Point, °F	D 92	430	415
Pour Point, °F	D 97	10	15
Rust Test			
Distilled Water	D 665A	Pass	Pass
Synthetic Sea Water	D 665B	Pass	Pass
Copper Strip Corrosion	D 130A	1a	1a
Stick Slip Test			
Static/Kinetic Ratio	D 2877	0.69	0.68
Four Ball EP	D 2783		
Load Wear Index, kgf		100	100
Weld Point, kgf		620+	620+
Calcium		Present	Present
Sulfur		Present	Present
Chlorine		None	None

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