



# GULF WESTERN OIL

## THE TOUGH AUSTRALIAN

### INDUSTRIAL/OFF HIGHWAY

## TECHNICAL DATA SHEET

### BIODRAULIC SERIES

#### SUMMARY OF BENEFITS

Based on full TMP synthetic ester technology, the Biodraulic series offers far higher performance levels, compared to mineral based products, particularly when operating in high temperature and extended service applications. The range provides superior oxidation resistance, allowing longer service life, and a very high natural viscosity index which ensures "stay in grade viscosity" due to increased resistance to shear down in high stress applications.

#### PROPERTIES - COMPATIBILITY

The Biodraulic series is compatible with iron and steel alloys and most nonferrous metals and their alloys. They are not compatible with lead, cadmium, zinc and alloys containing high levels of these metals. The products are compatible with multi-component epoxy coatings, but not with zinc-based coatings.

The products are compatible with nearly all mineral oil type hydraulic fluids. They are not miscible or compatible with water containing fluids and these fluids must be removed from the system prior to using the Biodraulic product. The Biodraulic series products are compatible with some, but not all, phosphate esters. Testing prior to conversion is recommended.

This chart contains recommendations regarding the use of the Biodraulic series of products with commonly used elastomers. Three categories of elastomers are listed. "Static" refers to trapped, non-movings seals such as O-rings in valve subplates and rigid, low pressure hose connections.

"Mild-Dynamic" applications include accumulator bladders and hose linings where the hoses are exposed to high pressure and light flexing. "Dynamic" refers to cylinder rod seals, pump shaft seals and constantly flexing hydraulic hose.

#### ELASTOMER COMPATIBILITY

ISO 1629	DESCRIPTION	STATIC	MILD DYNAMIC	DYNAMIC
NBR	Medium to high nitrile rubber (Buna N, > 30% acrylonitrile)	C	C	C
NBR	Low nitrile rubber (Buna N, <30% acrylonitrile)	S	N	N
FPM	Fluoroelastomer (Viton®)	C	C	C
CR	Neoprene	S	S	S
IIR	Butyl rubber	S	N	N
EPDM	Ethylene propylene rubber	N	N	N
AU	Polyurethane	C	C	C
PTFE	Teflon	C	C	C

C = Compatible

S = Satisfactory for short-term use, but replacement with a completely different elastomer is recommended at the earliest convenience

N = Not compatible



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#### TYPICAL PROPERTIES

CHARACTERISTICS	TEST METHOD	UNITS	46	68
Density @ 15°C	ASTM D1298	g/cm <sup>3</sup>	0.90	0.91
Kinematic Viscosity				
@ 0°C	ASTM D445	cSt	295	500
@ 20°C	ASTM D445	cSt	102	150
@ 40°C	ASTM D445	cSt	46	68
@ 100°C	ASTM D445	cSt	10	14
Viscosity Index	ASTM D2270	-	212	215
Acid Number (mg KOH/g)	-	-	2.0	1.5
Pour Point	ASTM D97	°C	<20	<20
Foam Test	ASTM D892	mL	50	50
Corrosion Protection	CETOP R 48H	-	Pass	Pass
Flash Point (COC)	ASTM D92	°C	260	260
Fire Point	ASTM D92	°C	288	315
Auto Ignition Temperature	-	°C	450	450
Pump Test	ASTM D2882	mg	<5 wear	<5 wear
Gear Lubrication	-	FZG	>12	>12
Colour	Yellow to Amber Fluid	-	-	-

Typical characteristics are only a guide to industry and are not necessarily manufacturing or marketing specifications and do not constitute any legal liability.

The facts stated and the recommendations made herein are believed to be accurate. No guarantee of their accuracy is made however, and unless otherwise expressly provided in written contract, the products are sold without conditions or warranties, expressed or implied. Purchasers should determine the suitability of such products for their particular purposes.

#### STORAGE

All packages should be stored under cover to avoid the possible ingress of water and the obliteration of drum markings. Products should not be stored above 60°C.

#### AVAILABLE PACK SIZES

46: 205lt - 40002, 20lt - 42002

68: 205lt - 40009, 20lt - 42009

#### HEALTH, SAFETY AND ENVIRONMENT

**Safety:** The Biodraulic series hydraulic fluids are fire resistant. In case of a fire, the product's self extinguishing properties limit the spread of the fire.

**Toxicity:** The products are non-toxic, non-irritating and contain no hazardous ingredients.

**Environmental:** The Biodraulic Series hydraulic fluids have a unique chemical structure that is readily biodegradable and non-toxic to aquatic life. The products have been independently tested and shown to be more than 95% completely biodegradable. The fluids float on water and are not water soluble. In case of a spill in waterways it can be removed by standard skimming techniques. For more information refer to the Materials Safety Data Sheet, which can be obtained by contacting Gulf Western Oil on: 02 9673 9600.