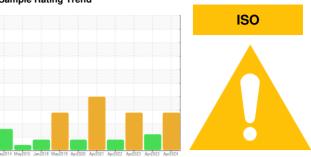


OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

FALK REFINERY VAC PAN 3

Gearbox

Geal Do

MOBIL SHC 630 (10 GAL)

DIAGNOSIS

Recommendation

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor. Due to an abnormal test result it is recommended to contact Stauff Corp at (201)-444-7800 for help resolving the issue.

Wear

All component wear rates are normal.

Contamination

There is a high amount of particulates present in the oil.

Fluid Condition

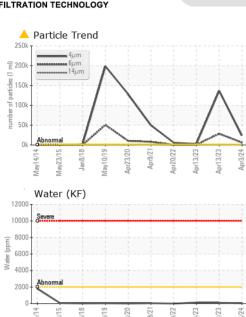
The AN level is acceptable for this fluid.

Sample Number Client Info ST43215 ST44630 ST38289 Sample Date Client Info O3 Apr 2024 13 Apr 2023 13 Apr 2026 13 Apr 2023 13 Apr 2026 13 Apr 2028 14 Apr 20							
Sample Date Client Info 03 Apr 2024 13 Apr 2023 13 Apr 2026 Machine Age mths Client Info 0 0 0 0 Oil Age mths Client Info 0 0 0 0 Oil Changed Client Info N/A N/A N/A N/A Sample Status ABNORMAL ABNORMAL ABNORMAL ABNORMAL ABNORMAL Iron ppm ASTM D5185m 200 <1 <1 69 Chromium ppm ASTM D5185m >15 0 0 <1 Nickel ppm ASTM D5185m 15 0 0 <1 Aluminum ppm ASTM D5185m 0 0 0 0 Lead ppm ASTM D5185m >20 0 0 1 Lead ppm ASTM D5185m >20 0 0 <1 Vanadium ppm ASTM D5185m >10 0 0 <2	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age mths	Sample Number		Client Info		ST43215	ST44630	ST38289
Oil Age mths Client Info N/A	Sample Date		Client Info		03 Apr 2024	13 Apr 2023	13 Apr 2023
Cilient Info	Machine Age	mths	Client Info		0	0	0
MEAR METALS method limit/base current history1 history1 Iron ppm ASTM 05185m >200 <1	Oil Age	mths	Client Info		0	0	0
WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >200 <1	Oil Changed		Client Info		N/A	N/A	N/A
Irron	Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
Chromium ppm ASTM D5185m >15 0 0 <1 Nickel ppm ASTM D5185m >15 0 0 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >15 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Iron	ppm	ASTM D5185m	>200	<1	<1	69
Titanium ppm ASTM D5185m 0 0 0 Silver ppm ASTM D5185m 0 0 0 Aluminum ppm ASTM D5185m >25 0 0 1 Lead ppm ASTM D5185m >100 0 0 0 Copper ppm ASTM D5185m >200 0 0 1 Tin ppm ASTM D5185m >20 0 0 0 Vanadium ppm ASTM D5185m >25 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 0 0 29 Barium ppm ASTM D5185m 0 0 0 0 Molydedenum ppm ASTM D5185m 0 0 1 2 Magnes	Chromium	ppm	ASTM D5185m	>15	0	0	<1
Silver	Nickel	ppm	ASTM D5185m	>15	0	0	<1
Aluminum ppm ASTM D5185m >25 0 0 1 Lead ppm ASTM D5185m >100 0 0 0 Copper ppm ASTM D5185m >200 0 0 0 Tin ppm ASTM D5185m >25 0 0 0 Vanadium ppm ASTM D5185m <1	Titanium	ppm	ASTM D5185m		0	0	0
Lead ppm ASTM D5185m >100 0 0 0 Copper ppm ASTM D5185m >200 0 0 <1	Silver	ppm	ASTM D5185m			0	
Copper ppm ASTM D5185m >200 0 0 <1 Tin ppm ASTM D5185m >25 0 0 0 Vanadium ppm ASTM D5185m <1	Aluminum	ppm	ASTM D5185m	>25	0	0	1
Tin ppm ASTM D5185m >25 0 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 5 Manganese ppm ASTM D5185m 0 0 0 1 2 Magnesium ppm ASTM D5185m 0 0 1 2 Calcium ppm ASTM D5185m 0 0 1 2 Calcium ppm ASTM D5185m 0 0 1 2 Calcium ppm ASTM D5185m 0 0 1 4 Phosphorus ppm ASTM D5185m 375 423 535 Zinc ppm ASTM D5185m 0 0 24 Sulfur ppm ASTM D5185m 0 0 0 24 Sulfur ppm ASTM D5185m 0 0 0 24 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >50 8 10 4 Sodium ppm ASTM D5185m >20 0 0 1 Water % ASTM D5185m >20 0 0 0 <1 Vater % ASTM D5185m >20 0 0 0 <1 Vater % ASTM D5185m >20 0 0 0 <1 Vater % ASTM D5185m >20 0 0 0 1 Vater % ASTM D5185m >20 0 0 0 1 Vater % ASTM D5185m >20 0 0 0 1 Vater % ASTM D5185m >20 0 0 0 1 Vater % ASTM D5185m >20 0 0 0 1 Vater % ASTM D5185m >20 0 0 0 1 Vater % ASTM D5185m >20 0 0 0 1 Vater % ASTM D5185m >20 0 0 0 1 Vater % ASTM D5185m >20 0 0 0 1 Vater % ASTM D5185m >20 0 0 0 1 Vater % ASTM D5185m >20 0 0 0 1 Vater % ASTM D5185m >20 0 0 0 1 Vater % ASTM D5185m >20 0 0 0 2 1 Vater % ASTM D5185m >20 0 0 0 2 1 Vater % ASTM D5185m >20 0 0 0 1 Vater % ASTM D5185m >20 0 0 0 2 1 Vater % ASTM D5		ppm	ASTM D5185m	>100		0	0
Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 0 29 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 0 5 Manganese ppm ASTM D5185m 0 <1 2 Magnesium ppm ASTM D5185m 2 0 14 Phosphorus ppm ASTM D5185m 2 0 14 Phosphorus ppm ASTM D5185m 375 423 535 Zinc ppm ASTM D5185m 312 112 23036 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 8 10	Copper	ppm	ASTM D5185m	>200	0	0	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 0 29 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 0 5 Manganese ppm ASTM D5185m 0 <1		ppm	ASTM D5185m	>25	0	0	0
ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 0 29 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 0 5 Manganese ppm ASTM D5185m 0 <1	Vanadium	ppm	ASTM D5185m		<1	0	0
Boron ppm ASTM D5185m 0 0 29 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 0 5 Manganese ppm ASTM D5185m 0 <1 2 Magnesium ppm ASTM D5185m 2 0 14 Phosphorus ppm ASTM D5185m 2 0 14 Phosphorus ppm ASTM D5185m 375 423 535 Zinc ppm ASTM D5185m 0 0 24 Sulfur ppm ASTM D5185m 312 112 23036 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 8 10 4 Sodium ppm ASTM D5185m >20 0 0 <1 Potassium ppm ASTM D5185m >20 0 <	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 0 5 Manganese ppm ASTM D5185m 0 <1 2 Magnesium ppm ASTM D5185m 2 0 14 Phosphorus ppm ASTM D5185m 2 0 14 Phosphorus ppm ASTM D5185m 375 423 535 Zinc ppm ASTM D5185m 0 0 24 Sulfur ppm ASTM D5185m 312 112 23036 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 8 10 4 Sodium ppm ASTM D5185m >20 0 0 <1 Potassium ppm ASTM D5185m >20 0 0 <1 Water % ASTM D5185m >20 <	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 0 0 5 Manganese ppm ASTM D5185m 0 <1 2 Magnesium ppm ASTM D5185m 0 <1 2 Calcium ppm ASTM D5185m 2 0 14 Phosphorus ppm ASTM D5185m 375 423 535 Zinc ppm ASTM D5185m 0 0 24 Sulfur ppm ASTM D5185m 312 112 23036 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 8 10 4 Sodium ppm ASTM D5185m >20 0 0 <1 Potassium ppm ASTM D5185m >20 0 0 <1 Water % ASTM D6185m >20 0 0 <1 Particles >4µm ASTM D6304 >0.2	Boron	ppm			0	0	29
Manganese ppm ASTM D5185m 0 <1 2 Magnesium ppm ASTM D5185m 0 <1 2 Calcium ppm ASTM D5185m 2 0 14 Phosphorus ppm ASTM D5185m 375 423 535 Zinc ppm ASTM D5185m 0 0 24 Sulfur ppm ASTM D5185m 312 112 23036 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 8 10 4 Sodium ppm ASTM D5185m >50 8 10 4 Sodium ppm ASTM D5185m >20 0 0 <1 Potassium ppm ASTM D5185m >20 0 0 <1 Water % ASTM D6304 >0.2 0.005 0.008 0.012 Particles > 4µm ASTM D7647<		ppm	ASTM D5185m		0	0	0
Magnesium ppm ASTM D5185m 0 <1 2 Calcium ppm ASTM D5185m 2 0 14 Phosphorus ppm ASTM D5185m 375 423 535 Zinc ppm ASTM D5185m 0 0 24 Sulfur ppm ASTM D5185m 312 112 23036 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 8 10 4 Sodium ppm ASTM D5185m >50 8 10 4 Sodium ppm ASTM D5185m >20 0 0 <1 Potassium ppm ASTM D5185m >20 0 0 <1 Water % ASTM D5185m >20 0 0 <1 Potassium ppm ASTM D5185m >20 0 0 <0 <1 Water	Molybdenum	ppm	ASTM D5185m		0	0	5
Calcium ppm ASTM D5185m 2 0 14 Phosphorus ppm ASTM D5185m 375 423 535 Zinc ppm ASTM D5185m 0 0 24 Sulfur ppm ASTM D5185m 312 112 23036 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 8 10 4 Sodium ppm ASTM D5185m >20 0 0 <1	Manganese	ppm	ASTM D5185m		0	<1	2
Phosphorus ppm ASTM D5185m 375 423 535 Zinc ppm ASTM D5185m 0 0 24 Sulfur ppm ASTM D5185m 312 112 23036 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >50 8 10 4 Sodium ppm ASTM D5185m >50 8 10 4 Sodium ppm ASTM D5185m >20 0 0 <1	Magnesium	ppm	ASTM D5185m		0	<1	2
Zinc ppm ASTM D5185m 0 0 24 Sulfur ppm ASTM D5185m 312 112 23036 CONTAMINANTS method limit/base current history1 history3 Silicon ppm ASTM D5185m >50 8 10 4 Sodium ppm ASTM D5185m >20 0 0 <1 Potassium ppm ASTM D5185m >20 0 0 <1 Water % ASTM D6304 >0.2 0.005 0.008 0.012 Particles >4µm ASTM D7647 >1300 24172 2907 136296	Calcium	ppm	ASTM D5185m		2	0	14
Sulfur ppm ASTM D5185m 312 112 23036 CONTAMINANTS method limit/base current history1 history3 Silicon ppm ASTM D5185m >50 8 10 4 Sodium ppm ASTM D5185m >10 <1	Phosphorus	ppm	ASTM D5185m		375	423	535
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >50 8 10 4 Sodium ppm ASTM D5185m <1	Zinc	ppm	ASTM D5185m		0	0	24
Silicon ppm ASTM D5185m >50	Sulfur	ppm	ASTM D5185m		312	112	23036
Sodium ppm ASTM D5185m <1	CONTAMINANTS	3	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 0 0 <1 Water % ASTM D6304 >0.2 0.005 0.008 0.012 ppm Water ppm ASTM D6304 >2000 50 89.5 124.1 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4μm ASTM D7647 >1300 Δ24172 Δ2907 Δ136296 Particles >6μm ASTM D7647 >320 Δ6162 Δ687 Δ28431 Particles >14μm ASTM D7647 >80 Δ382 39 Δ418 Particles >21μm ASTM D7647 >20 Δ105 7 Δ110 Particles >38μm ASTM D7647 >3 Δ3 0 Δ2 Oil Cleanliness ISO 4406 (c) >17/15/13 Δ22/20/16 Δ19/17/12 Δ24/22/10 FLUID DEGRADATION method limit/base current history1 history1	Silicon	ppm	ASTM D5185m	>50	8	10	4
Water % ASTM D6304 >0.2 0.005 0.008 0.012 ppm Water ppm ASTM D6304 >2000 50 89.5 124.1 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4μm ASTM D7647 >1300 Δ 24172 Δ 2907 Δ 136296 Particles >6μm ASTM D7647 >320 Δ 6162 Δ 687 Δ 28431 Particles >14μm ASTM D7647 >80 Δ 382 39 Δ 418 Particles >21μm ASTM D7647 >20 Δ 105 7 Δ 110 Particles >38μm ASTM D7647 >4 Δ 13 1 Δ 13 Particles >71μm ASTM D7647 >3 Δ 3 0 Δ 2 Oil Cleanliness ISO 4406 (c) >17/15/13 Δ 22/20/16 Δ 19/17/12 Δ 24/22/10 FLUID DEGRADATION method limit/base current history1 history1	Sodium	ppm	ASTM D5185m		<1	0	<1
ppm Water ppm ASTM D6304 >2000 50 89.5 124.1 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4μm ASTM D7647 >1300 Δ 24172 Δ 2907 Δ 136296 Particles >6μm ASTM D7647 >320 Δ 6162 Δ 687 Δ 28431 Particles >14μm ASTM D7647 >80 Δ 382 39 Δ 418 Particles >21μm ASTM D7647 >20 Δ 105 7 Δ 110 Particles >38μm ASTM D7647 >4 Δ 13 1 Δ 13 Particles >71μm ASTM D7647 >3 Δ 3 0 Δ 2 Oil Cleanliness ISO 4406 (c) >17/15/13 Δ 22/20/16 Δ 19/17/12 Δ 24/22/10 FLUID DEGRADATION method limit/base current history1 history1	Potassium	ppm	ASTM D5185m	>20	0	0	<1
FLUID CLEANLINESS method limit/base current history1 history1 Particles >4μm ASTM D7647 >1300 Δ 24172 Δ 2907 Δ 136296 Particles >6μm ASTM D7647 >320 Δ 6162 Δ 687 Δ 28431 Particles >14μm ASTM D7647 >80 Δ 382 39 Δ 418 Particles >21μm ASTM D7647 >20 Δ 105 7 Δ 110 Particles >38μm ASTM D7647 >4 Δ 13 1 Δ 13 Particles >71μm ASTM D7647 >3 Δ 3 0 Δ 2 Oil Cleanliness ISO 4406 (c) >17/15/13 Δ 22/20/16 Δ 19/17/12 Δ 24/22/10 FLUID DEGRADATION method limit/base current history1 history1	Water	%	ASTM D6304	>0.2	0.005	0.008	0.012
Particles >4μm ASTM D7647 >1300 ▲ 24172 ▲ 2907 ▲ 136296 Particles >6μm ASTM D7647 >320 ▲ 6162 ▲ 687 ▲ 28431 Particles >14μm ASTM D7647 >80 ▲ 382 39 ▲ 418 Particles >21μm ASTM D7647 >20 ▲ 105 7 ▲ 110 Particles >38μm ASTM D7647 >4 ▲ 13 1 ▲ 13 Particles >71μm ASTM D7647 >3 ▲ 3 0 ▲ 2 Oil Cleanliness ISO 4406 (c) >17/15/13 ▲ 22/20/16 ▲ 19/17/12 ▲ 24/22/10 FLUID DEGRADATION method limit/base current history1 history1	ppm Water	ppm	ASTM D6304	>2000	50	89.5	124.1
Particles >6μm ASTM D7647 >320 6162 687 28431 Particles >14μm ASTM D7647 >80 382 39 418 Particles >21μm ASTM D7647 >20 105 7 110 Particles >38μm ASTM D7647 >4 13 1 13 Particles >71μm ASTM D7647 >3 3 0 2 Oil Cleanliness ISO 4406 (c) >17/15/13 22/20/16 19/17/12 24/22/16 FLUID DEGRADATION method limit/base current history history	FLUID CLEANLIN	IESS	method	limit/base	current	history1	history2
Particles >14μm ASTM D7647 >80 ▲ 382 39 ▲ 418 Particles >21μm ASTM D7647 >20 ▲ 105 7 ▲ 110 Particles >38μm ASTM D7647 >4 ▲ 13 1 ▲ 13 Particles >71μm ASTM D7647 >3 ▲ 3 0 ▲ 2 Oil Cleanliness ISO 4406 (c) >17/15/13 ▲ 22/20/16 ▲ 19/17/12 ▲ 24/22/19 FLUID DEGRADATION method limit/base current history history	Particles >4µm		ASTM D7647	>1300	<u> 24172</u>	▲ 2907	△ 136296
Particles >21μm ASTM D7647 >20 ▲ 105 7 ▲ 110 Particles >38μm ASTM D7647 >4 ▲ 13 1 ▲ 13 Particles >71μm ASTM D7647 >3 ▲ 3 0 ▲ 2 Oil Cleanliness ISO 4406 (c) >17/15/13 ▲ 22/20/16 ▲ 19/17/12 ▲ 24/22/10 FLUID DEGRADATION method limit/base current history1 history1	Particles >6µm		ASTM D7647	>320	<u>^</u> 6162	△ 687	<u>^</u> 28431
Particles >38μm ASTM D7647 >4 ▲ 13 1 ▲ 13 Particles >71μm ASTM D7647 >3 ▲ 3 0 ▲ 2 Oil Cleanliness ISO 4406 (c) >17/15/13 ▲ 22/20/16 ▲ 19/17/12 ▲ 24/22/10 FLUID DEGRADATION method limit/base current history1 history1	Particles >14μm		ASTM D7647	>80	▲ 382	39	▲ 418
Particles >71μm ASTM D7647 >3 Δ 3 0 Δ 2 Oil Cleanliness ISO 4406 (c) >17/15/13 Δ 22/20/16 Δ 19/17/12 Δ 24/22/10 FLUID DEGRADATION method limit/base current history history	Particles >21µm		ASTM D7647	>20	<u> </u>	7	
Oil Cleanliness ISO 4406 (c) >17/15/13 ▲ 22/20/16 ▲ 19/17/12 ▲ 24/22/10 FLUID DEGRADATION method limit/base current history1 history	Particles >38μm		ASTM D7647	>4	<u> </u>	1	▲ 13
FLUID DEGRADATION method limit/base current history1 history	Particles >71μm		ASTM D7647	>3	<u>^</u> 3	0	<u>^</u> 2
•	Oil Cleanliness		ISO 4406 (c)	>17/15/13	22/20/16	△ 19/17/12	2 4/22/16
Acid Number (AN) mg KOH/g ASTM D8045 0.31 0.31 1.24	FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045		0.31	0.31	1.24



OIL ANALYSIS REPORT

cSt



VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	LIGHT	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERTIES		method	limit/base	current	history1	history2

SAMPLE IMAGES method limit/base history2 current history1

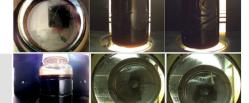
223

ASTM D445 217.7

Color

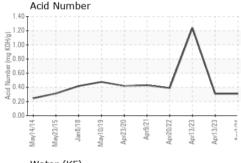
Visc @ 40°C

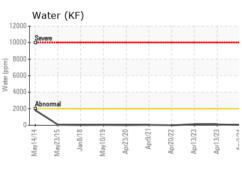


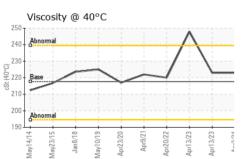


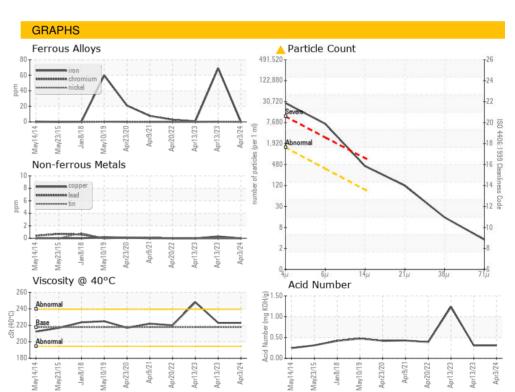
223

248













Certificate 12367

Laboratory Sample No.

: ST43215 Lab Number : 06143059 Unique Number : 10967867

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Received **Tested** Diagnosed Test Package : IND 2 (Additional Tests: KF, PrtCount)

: 09 Apr 2024 : 10 Apr 2024

: 11 Apr 2024 - Jonathan Hester

HYDRAULIC SUPPLY COMPANY 326 SE 1ST ST BELLE GLADE, FL US 33430

Contact: ROBERT RETALEATO r.retaleato@hydraulic-supply.com;rsr@hydraulic-supply.com

T: (561)996-4431

To discuss this sample report, contact Customer Service at 1-800-237-1369. * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (561)996-8531 Contact/Location: ROBERT RETALEATO - HYDBELFL